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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF PENNSYLVANIA,

AT ITS

FORTIETH ANNUAL SESSION,

HELD AT PITTSBURG, 1889-90.

VOLUME XXI.

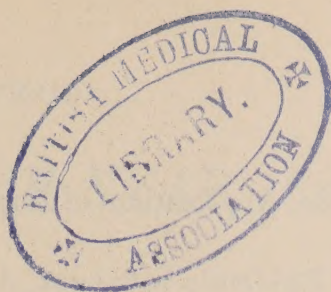


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OFFICERS FOR THE YEAR 1889-90.

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M. A. RHOADS.

SAMUEL C. ERMENTROUT.

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J. T. CARPENTER,	Pottsville.	1891.
E. A. WOOD,	Pittsburg.	1891.
A. M. MILLER,	Bird-in-Hand.	1892.
W. T. BISHOP,	Harrisburg.	1892.
TRAILL GREEN,	Easton.	1892.
S. S. SCHULTZ,	Danville.	1893.
J. H. PACKARD,	Philadelphia.	1893.
JOHN CURWEN,	Warren.	1893.

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 JAMES FULTON, Chester “

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 TRAIL GREEN, Northampton Co.
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 (Vacancy), Carbon “

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 W. M. WEIDMAN, Berks “
 D. J. McKIBBEN, Schuylkill Co.

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 A. M. SMITH, Snyder Co.

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 J. C. GABLE, York “
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 land Co.
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 M. H. ALTER, Armstrong “

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 S. L. BLACHLEY, Washington Co.
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 J. CRESWELL, Clarion “

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W. H. DELONG, Elk “
R. B. BROWN, Jefferson “
A. M. STRAIGHT, McKean “

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G. T. HARRIS, Centre “
P. H. DETWILER, Lycoming Co.

Twelfth District:

P. C. NEWBAKER, Montour Co.
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S. BIRDSALL, Susquehanna Co.

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N. W. BROWN, Pittsburg.
JOHN J. BUCHANAN, Pittsburg.
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JOHN S. DICKSON, Pittsburg.
J. M. DUFF, Pittsburg.
WM. S. FOSTER, Pittsburg.
JOHN J. GREEN, Pittsburg.
W. E. HALLOCK, Pittsburg.
W. B. HENDERSON, Pittsburg.
D. A. HENGST, Pittsburg.
W. E. JOHNSTON, Etna.
M. O. JONES, Pittsburg.
W. W. JONES, Allegheny.
W. F. KNOX, McKeesport.
ADOLPH KOENIG, Pittsburg.
M. H. LINCOLN, Natrona.
J. S. MABON, Allegheny.
J. W. MACFARLANE, Pittsburg.
T. M. T. McKENNAN, Pittsburg.
G. W. McNEIL, Pittsburg.
E. T. PAINTER, Pittsburg.
ALBERT PETTIT, Pittsburg.
E. S. RIGGS, Allegheny.
CHAS. S. SHAW, Pittsburg.
J. M. STEVENSON, Pittsburg.
R. W. STEWART, Pittsburg.
E. A. WOOD, Pittsburg.

Permanent members:

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J. M. BATTEN, Pittsburg.

W. C. BANE, Pittsburg.
A. V. CHESROWN, Pittsburg.
J. C. DUNN, Pittsburg.
A. EASTON, Allegheny.
C. EMMERLING, Pittsburg.
W. S. HUSELTON, Allegheny.
C. B. KING, Allegheny.
J. CHRIS LANGE, Pittsburg.
W. J. LANGFIT, Allegheny.
W. J. MOYNE, Pittsburg.
J. A. LIPPINCOTT, Pittsburg.
JAS. McCANN, Pittsburg.
THOS. MABON, Allegheny.
O. L. MILLER, Allegheny.
R. B. MOWRY, Allegheny.
J. W. NEELY, Pittsburg.
A. M. POLLOCK, Pittsburg.
D. N. RANKIN, Allegheny.
W. C. SHAW, Pittsburg.
R. L. WALKER, Mansfield Valley.

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R. P. HUNTER, Leechburg.
C. J. JESSOP, Kittanning.
W. MCBRYAR, Apollo.
J. D. ORR, Leechburg.

Permanent members:

T. M. ALLISON, Kittanning.
J. T. McCULLOCH, Freeport.
R. L. McCURDY, Freeport.
W. H. STEWART, Kittanning.

Beaver County, delegates:

W. T. GRIM, Beaver Falls.
S. S. KRING, "
RAY R. MITCHELL, Rochester.

Permanent member:

T. P. SIMPSON, Beaver Falls.

Bedford County, delegate:

W. D. HAMAKER, Meadville
(Crawford Co.).

Berks County, delegates:

D. B. D. BEAVER, Reading.
ISRAEL CLEAVER, "
S. C. ERMENTROUT, "
J. Y. HOFFMAN, "
C. G. LOOSE, "

Blair County, delegates:

J. M. GEMMILL, JR., Tyrone.
R. C. IRWIN, Hollidaysburg.
G. W. SMITH, Hollidaysburg.
S. M. ROSS, Altoona.

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D. W. STURDEVANT, Laceyville
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F. A. THOMPSON, Durell.

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A. M. COOPER, Point Pleasant.
J. N. RICHARDS, Fallsington.

Butler County, delegates:

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S. M. BIPPUS, Butler.
E. P. LOGAN, Saxonburg.
J. F. MOORE, Butler.

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F. V. BROOKS, Evans City.
W. R. COWDEN, Jacksville.

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W. B. LOWMAN, "
T. S. TROXELL, Gallitzin.
GEO. W. WAGONER, Johnstown.
W. W. WALTERS, "

Permanent members:

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J. C. SHERIDAN, "
J. STRICKER, Portage.
A. N. WAKEFIELD, Johnstown.

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A. F. DENLINGER, Lansford.

Centre County, delegates:

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S. F. LYTLE, Phillipsburg.

Permanent members:

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T. H. VAN VALZAH, Spring Mills.

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THOS. D. DUNN, West Chester.

Permanent member:

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J. M. FITZGERALD, Clarion.
H. T. REIMSEL, Scotch Hills.
JOHN T. RIMER, Clarion.
J. F. SUMMERVILLE, Monroe.

Permanent member:

J. FRANK ROSS, Clarion.

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Permanent members:

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W. A. MEANS, Du Bois.
S. H. PETTIGREW, Du Bois.
F. B. READ, Osceola Mills.

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Crawford County, delegate:

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Permanent member:

THEO. J. YOUNG, Titusville.

Crawford County, delegates:

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JULIAN S. PATTERSON, Middlesex.

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F. W. COOVER, "
J. Z. GERHARD, Harrisburg.
JANE K. GARVER, "

Permanent member:

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W. B. ULRICH, Chester.

Permanent member:

FRANCES N. BAKER, Media.

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- H. W. THAYER, Corry.
 A. A. WOODS, Erie.
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 ISAAC JACKSON, Brownsville.
 J. C. McCLENATHAN, Connellsville.
 W. A. SHOEMAKER, Dawson.
 P. F. SMITH, Mt. Braddock.
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 JANE TEAGARDEN, Waynesburg.
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 S. REYNOLDS, Reynoldsville.
 J. C. STAHLMAN, Richardsville.
- Permanent members :*
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 J. C. KING, Reynoldsville.
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 ALEX. CRAIG, Columbia.
- A. M. MILLER, Bird-in-Hand.
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 G. F. HARTMAN, Port Kennedy.
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- Northampton County, delegate :*
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- Perry County, delegate :*
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M. B. HARTZELL, “

W. R. HOCH, “

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T. J. MAYS, “

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S. A. LACOCK, Canonsburg.

J. E. LONG, Kammerer.

J. F. MCCARRELL, Eldersville.

W. T. MITCHELL, Charleroi.

U. B. MURRAY, Amity.

W. V. RIDDLE, Burgettstown.

W. D. TEAGARDEN, Washington.

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D. M. MCCARRELL, Hickory.

J. McELROY, “

T. McKENNAN, Washington.

J. A. PATTERSON, “

J. Y. SCOTT, “

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J. M. SPROULS, Claysville.

W. A. THOMPSON, Washington.

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W. J. K. KLINE, Greensburg.

F. L. MARSH, Mt. Pleasant.

A. H. MYERS, “

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A. W. STRICKLER, Scottdale.

B. H. VAN KIRK, West Newton.

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S. D. BARR, York.

D. KING GOTWALD, York.

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J. DEISINGER, Hellam.

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W. W. DALE, Carlisle, Vice-President.

WM. B. ATKINSON, Philadelphia,
Permanent Secretary.

CHAS. W. DULLES, Philadelphia,
Recording Secretary.

Members by invitation :

ERNEST LA PLACE, Philadelphia.

I. N. LOVE, St. Louis, Mo.

IN MEMORIAM.

HENRY HOLLINGSWORTH SMITH, M.D., LL.D.

Born 1815. Died 1890.

Dr. Henry H. Smith, who became a member of the Medical Society of the State of Pennsylvania in 1870, and who was elected its president in 1883, was distinguished as a surgeon throughout the State and country, and was known abroad by his teachings and writings. He was born in Philadelphia, December 10, 1815, the son of James S. Smith, a well-known lawyer. He was graduated from the Department of Arts in the University of Pennsylvania in 1834, and from the Department of Medicine in 1837. He was a resident physician and surgeon at the Pennsylvania Hospital for two years, and studied in Europe for eighteen months. In 1841 he translated Civiale's work on *Stone and Gravel*, and published in 1843 an *Anatomical Atlas* to illustrate Horner's *Anatomy*, in 1844 a book on *Minor Surgery*, in 1852 a treatise on *Operative Surgery*, and in 1856 a work on the *General Practice of Surgery*.

He was elected Surgeon to St. Joseph's Hospital in 1849, to the Episcopal Hospital soon after, and to the Philadelphia Hospital (Blockley) in 1854. In 1855 he was elected Professor of Surgery in the University of Pennsylvania.

At the outbreak of the Civil War he was appointed Surgeon-General of the State of Pennsylvania, and he participated in the battles of Williamsburg, West Point, Fair Oaks, and Cold Harbor. In 1862 he resigned his commission. In 1871 he resigned the position of Professor of Surgery in the University of Pennsylvania, and was made Professor Emeritus.

He was President of the Philadelphia County Medical Society in 1878, 1879, and 1880, President of this Society in 1883-84, and President of the Section on Military and Naval Surgery and Medicine of the Ninth International Medical Congress, which met in Washington in 1887.

In 1843 he married Mary Edmunds, oldest daughter of Professor William E. Horner. He died, April 11, 1890, in Philadelphia.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA,

PITTSBURG, JUNE, 1889.

THE Medical Society of the State of Pennsylvania met at Pittsburg, June 4, 1889, at the Bijou Theatre.

The President called the meeting to order at 10 A. M.

An announcement having been made of the terrible calamity which had occurred at Johnstown, Cambria Co.,

On motion of Dr. SIBBET, of Cumberland Co., the sympathy of the Society was extended to the people of Johnstown, and to the profession and the families of those who had suffered.

On motion of Dr. L. F. FLICK, of Philadelphia, the sum of \$1000 was appropriated to the profession of that locality, and the money was directed to be paid to Dr. Schill, Treasurer of the Cambria County Medical Society.

After some discussion upon the condition of the railroads, and the inability of the members to get to the place of meeting, on motion, the Society adjourned until September, 1889, to meet at the call of the Chairman of the Committee of Arrangements.

WM. B. ATKINSON,
Permanent Secretary.

PITTSBURG, July 15, 1889.

At a meeting of the Committee held to-day the following resolutions were adopted :

Whereas, The annual meeting of the Medical Society of the State of Pennsylvania, which convened at Pittsburg, June 4, 1889, was adjourned until the first Tuesday of the following September, by reason of the distress and confusion caused by the flood in the Conemaugh Valley ; and

Whereas, It is the opinion of many prominent members of the Society that a successful meeting of the Society cannot be held during the present calendar year, for many reasons, the chief of which is, that the sorrow and suffering caused by the recent great calamity still oppress the entire community to such an extent as to interfere with an early meeting ; therefore, be it

Resolved, That the meeting of the Medical Society of the State of Pennsylvania, which was adjourned to meet September 3, 1889, be still further adjourned until the second Tuesday of June, 1890 ; also,

Resolved, That a copy of these resolutions, together with the accompanying letter of explanation addressed to the members of the Society, be sent

2 MEDICAL SOCIETY OF STATE OF PENNSYLVANIA.

by Dr. Wm. B. Atkinson, the Secretary, to the Secretaries of each Medical Society in the State, and that they be published at as early a date as possible in the medical journals of the State.

The following was issued :

PITTSBURG, July 15, 1889.

To the Members of the Medical Society of the State of Pennsylvania.

DEAR BROTHERS: The Committee of Arrangements for the annual meeting of the Society desire to make the following explanation for adopting the foregoing resolutions :

It having been many years since the State Medical Society has held one of its meetings west of the mountains, it has been, and is, the earnest desire of the profession of Western Pennsylvania that this coming meeting should be a large and successful one.

Ample provision for the meeting which was to be held last June had been made, and there was every prospect that our fondest hopes would be realized, both in the scientific character of our work, and the pleasure to be derived from our social entertainments.

But, as is well known, we were doomed to disappointment by reason of the terrible disaster caused by the flood in the Conemaugh Valley. There were too few at the meeting to make it fairly representative, and it almost immediately adjourned to meet again in September.

At the time of this meeting the full measure of the disaster which had overtaken our fellow citizens (many of whom were our professional brothers) was not appreciated, and it was thought that the depression of spirit which was then felt would have sufficiently passed away, so that it would be possible to hold a full and successful meeting early in September.

Such, however, in our opinion, is not the case. The gloom and sorrow caused by the Conemaugh flood still hang like a pall over Pennsylvania. So depressed are our people, that it is believed by us that a meeting of the Society this year is not advisable, and that if the attempt were made it must prove a failure.

We might urge other reasons why a meeting this autumn would prove a failure, as, for instance, the fact that many of our members will not have returned from their summer vacations as early as September 3d, while others will be preparing for their winter's work, but we believe the reason that we have given is sufficient.

Your Committee has felt great delicacy in taking upon itself the responsibility of adjourning this meeting. Had time permitted, we most certainly would have advised with the different County Societies before taking such action. In the absence of any expressed law in our Constitution providing for such an emergency, we have been obliged to act according to our best judgment.

We trust that you will sustain us in this action, which, under the circumstances, we have felt it our duty to assume.

Respectfully yours,

E. A. WOOD,
Chairman.
W. S. FOSTER,
Secretary.

MINUTES OF THE PROCEEDINGS
OF THE
MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA,
AT ITS FORTIETH ANNUAL SESSION.

HELD IN
PITTSBURG, JUNE, 1890.

THE Medical Society of the State of Pennsylvania met at the Bijou Theatre, Pittsburg, June 10, 1890, and was called to order at 10 A. M.

The President, Dr. J. B. MURDOCH, of Allegheny Co., in the Chair; supported by Vice-President, Dr. WM. W. DALE, of Cumberland Co. The Permanent Secretary, Dr. WM. B. ATKINSON, of Philadelphia; the Assistant Secretary, Dr. C. W. DULLES, of Philadelphia, were present. Prayer was offered by Rev. David Jones, D.D.

Dr. E. A. WOOD, Chairman of the Committee of Arrangements, welcomed the Society as follows:

DELEGATES AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA: The citizens of Allegheny County are pleased and proud to have you meet again in this busy city. The Allegheny County Medical Society greets you, and bids you welcome to our halls and our homes.

We wish our welcome to be more than formal; we wish to impress on you a welcome burning with sincerity and shining with cordiality. If ever guests were worthy, the host grateful, and the occasion propitious, then this is the time when greetings should be heartfelt. From the time of your organization down to the present hour the members of Allegheny have been the recipients of the most considerate attention from this body. Wherever we may have met throughout this broad commonwealth—whether by Lake Erie's sounding shores, or by the waves of the Delaware, amid the oleate hills of the North or by the gushing mountain springs of the South, the treatment accorded Allegheny County physicians and surgeons has ever been princely in its cordiality.

This is one reason why we love our State Society, why we are proud to have it meet in our city, and why we wish to make our welcome in some degree commensurate with our gratitude toward you individually and collectively.

It goes without saying that a place, situated as is Pittsburg and her sister city Allegheny, must have played a thrilling and important part in the early history of America. A stranger, too, might, on studying the geographical relations of Pittsburg, as well as her vast and peculiar natural advantages, predict for this city a wonderful future—a future when she shall stand as the foremost manufacturing metropolis of the western hemisphere, if not of the world.

As her history is incorporated in the history of this continent and this republic, and as you may read her progress and her future triumph in the thousand forges and factories, it would seem not only egotistical but a work of supererogation for us to boast further of our city.

Your professional brethren here congratulate our State Medical Society on its harmony and its prosperity. The tremendous power which may be evolved from aggregate and organized experience and observation in developing the medical science and in strengthening individual judgment, is not sufficiently appreciated by the rank and file of the profession. Those who stand aloof are committing two wrongs—one on themselves, the other on their professional brethren and the cause of humanity. They wrong themselves by stubbornly refusing to avail themselves of the collective experience of those who constitute the members of this Society, and they wrong their professional brethren in keeping back much valuable information which should go toward enriching the general stock of medical knowledge. The isolated professional hermit is not and cannot be as clear in judgment or as skilful and successful in practice as he who rubs elbows with his fellows, learns their methods, and shares in their skill. In this age of rapid progress the people themselves are beginning to keep their eyes on the vanguard, and avoid the stragglers and the deserters.

The science of medicine, at its best, is not in itself a perfect one, and its prosecution as an art requires not only full knowledge of the principles of the science, but it also requires all the faculties trained and developed—requires the highest and best matured judgment, and all this must come by coöperation, by organized effort, by collective experience and observation. The odds are largely in favor of the practitioner who belongs to, and is a participator in the doings of, his county, State, and national medical associations.

Another common notion, which I fear prevails to some extent among the profession in country districts is, that this Society is adapted only for the brilliant, the renowned, and the cultured professors from the cities. With this belief, many do not become members, while others join, but through modesty take little or no part in the work of the State Society. This is all wrong, and ruinously wrong. I can only briefly call your attention to the wrong. In the first place, such a notion tends to depreciate that individual self-confidence which is absolutely necessary in the practitioner. Such belief cheats the modest practitioner out of that culture and that readiness

which a constant attendance and participation in the business of this organization are sure to bring. This modesty robs the profession of the work which it most needs—the actual work by the home fires and bedsides of the people of farms and villages.

We have a superabundance of hospital doings, but while such practice is valuable in its way, it is not the best practice on which to formulate rules for the care and treatment of patients surrounded with the comforts of home and the salubrious influences of the country. The learned professor from his hospital and laboratory may, it is true, teach us many scientific truths, but the busy country doctor may teach that professor and teach us all lessons which flash on us like a revelation. The town and the country in all worthy things are interdependent, but in nothing else are they so mutually dependent as in the practice and the practitioners of medicine. Our State Society is lacking in this coöperation, and until the want is supplied we cannot hope for the highest success. Let there be started at this session an effort to bring into our ranks every honorable medical practitioner of this State, and also an effort to encourage and induce the country doctor to take his honorable place in the front ranks of our State Society.

I again bid you a cordial welcome.

On motion of Dr. DULLES, of Philadelphia the rules were suspended to allow Dr. G. W. Wagoner, of Cambria Co., to deliver an address relative to the great calamity at Johnstown.

On motion of Dr. C. R. EARLEY, of Elk Co., this address was ordered to be spread upon the minutes.

Dr. E. E. MONTGOMERY, of Philadelphia, introduced Dr. Earnest LaPlace, of Philadelphia.

On motion, Dr. LaPlace was invited to a seat, and accorded the privileges of the Society.

Dr. E. JACKSON, of Philadelphia, on behalf of the delegation to the American Medical Association, read a report of the proceedings of the late session of that body.

Report of Delegates to the American Medical Association.

Any detailed report of the recent meeting of the Association held at Nashville, Tenn., is rendered unnecessary and out of place by the publication of the minutes of the meeting in the Journal of the Association (May 31st and June 7th).

There are, however, a few matters of especial interest to this Society that may here be mentioned. In the first place, the Pennsylvania delegation was large and representative. Our State furnished about fifty per cent. more papers to the programmes of the Sections than any other State, and we were fairly represented in the business of the general meetings. The meeting, as a whole, may be regarded as rather a quiet and harmonious one. The scientific work of the Sections was quite up to the standard of any former year. A Section on Materia Medica and Pharmacy was established, and one on Physiology and Dietetics proposed.

Two amendments to the Constitution proposed and laid over for action next year are of especial interest. One of these looks to the establishment of branches, whose members shall have all the rights of members of the Association; the other proposes to confer upon permanent members all the rights of delegates. The peculiar function of the American Medical Association is that of a representative body for the profession of the whole country. Even with its present membership but a small fraction of its members can be present at any one meeting, and as the Association grows, as we hope it will in the near future, this fraction that actually are present at any time to express directly their approval or disapproval of a particular measure will be quite insignificant. Now, if in the future the Association is to remain truly representative, two things must be secured, viz., those who are empowered to do the business of the meetings must be truly representative of opinions and desires of those who stay at home—they must be truly selected delegates; and, in the second place, there must be every guarantee of a stable policy against sudden change and overturning. The uncertainty as to the present status in this respect was well illustrated at the recent meeting, when the President at one time decided a motion of amendment to the By-laws carried by a mere majority vote. When it is reflected that the existence of the Sections, the Nominating Committee, even the Judicial Council, depends upon the By-laws, it will be seen that the Association is far from perfect in its organization as a representative body. This imperfection is felt, the amendments mentioned doubtless spring from some perception of it; and while this is not the time for specific recommendations, it behooves every member of this Society, and of every other society represented in the American Medical Association, carefully to consider the matter.

Another matter it may be worth our while to consider is the organization of our State delegation. This is commonly effected at the meeting to which it is appointed, amid the noise and confusion of a large hall occupied by many delegations similarly engaged, under conditions far from favorable to wise deliberation. Might it not be well to have the delegation meet once and select its officers, shortly after its appointment, during the meeting of the State Society?

EDWARD JACKSON,

Chairman of the Delegation.

Report of the Treasurer.

The Treasurer, Dr. O. H. Allis, of Philadelphia being absent, the report was read by Dr. Jackson.

DR.

Cash on hand at the auditing of report,	
June 6, 1888	\$1,636.33
Received from all sources	2,128.90
	————— \$3,765.23

CR.

By total expenditures	\$3,566.71
Cash on hand	198.52
	————— \$3,765.23

The total amount in the Treasurer's hands is less than two hundred dollars. This is due to the action of the State Society voting one thousand dollars to the members of the Cambria County Medical Society who had suffered from the Conemaugh flood.

The small amount in the treasury, though inadequate to meet the expenses of the present meeting of the Society and pay the salaries of the year, will be promptly met by the action of many county societies, whose habit it has been for years to pay promptly all demands from the State Society. This should be true of every county society, since there was no assessment in 1889, and thus a good opportunity to catch up.

In response to the assessment sent out September 7, 1888, twelve county societies sent in their checks before the close of the month. These were Susquehanna, Centre, Montour, Lehigh, Adams, Delaware, Beaver, Bucks, Philadelphia, Cumberland, Warren, and Schuylkill. Those that paid in October were Allegheny, Cambria, Chester, Clarion, Franklin, Jefferson, Northampton, and Venango. In November Clearfield, Dauphin, Elk, Erie, Westmoreland, and York. Thus in three months payments had been received from half the societies, and the Treasurer asks, Why should a single society in this organization require more time than this? If bills and salaries are to be met promptly, one of two methods lies before the Publication Committee. The first is to assess each society at a rate higher than the yearly expenses demand, and thus have a surplus in the treasury. If this course is adopted the burden of the society will fall chiefly upon societies that pay promptly. The plan adopted of late by the Committee has been to assess each society for its just amount of expenses, and then each individual tax is brought down to the lowest possible amount.

The Treasurer regrets to be obliged to report Lackawanna for dues unpaid for the year 1888.

Respectfully submitted,

OSCAR H. ALLIS,
Treasurer.

On motion of Dr. W. T. BISHOP, of Dauphin, the report and the report of the Permanent Secretary of the session of 1889 were referred to the Auditors.

Dr. JACKSON, of Philadelphia, Chairman, read the report of the Committee on Publication. The resolutions appended were, on motion, postponed until the order of new business.

Report of the Committee on Publication.

The Committee has issued 2250 copies of the *Transactions* for 1888, a volume of 363 pages, at a total cost of \$1322.56, or less than 59 cents per volume. Of these copies, we have distributed:

To County Medical Societies	2123
To other State Medical Societies, Boards of Health, Libraries, and Medical Journals	119

We would call attention to the fact that \$135, more than one-tenth of the whole cost of the volume, was expended for the reproduction of maps used to illustrate one of the papers. This expenditure was ordered by the Society without debate, and without any idea as to its probable amount.

We suggest that hereafter every motion directing an expenditure of funds shall appropriate a definite, carefully estimated amount, or so much thereof as may be required for the purpose indicated. And that all propositions to appropriate money, not accompanied by such an estimate of amount, shall be referred to the Publication Committee, either to report upon or with authority to act.

In 1882 the Society resolved "That each county medical society be instructed to report, with its list of members, the place and date of graduation, or other requirements for practice of each, as registered under the action of the new law." Last year seven county societies, including the large one of Allegheny, sent no such particulars, and a majority of those attempting to comply with the resolution sent incomplete lists. Yet these incomplete lists add eleven pages to the lists of members, and render less readily accessible the other information such lists contain. The publication of such particulars can no longer serve to encourage registration and they are now accessible in National and State Directories of Physicians, which were not in existence when the above resolution was adopted. We, therefore, recommend that such resolution be rescinded.

In 1883 it was ordered that the programme, *as reported by the Committee of Arrangements*, should be printed in the *Transactions*. As this programme is always subsequently altered and varied from, it does not represent the actual work of the meeting, which is to be known from the minutes, which are indexed; and as there seems to be no sufficient reason for printing such programme, we recommend the discontinuance thereof.

Respectfully submitted,

OSCAR H. ALLIS,	EDWARD JACKSON,
CHARLES W. DULLES,	J. H. MUSSER,
WM. B. ATKINSON,	G. W. GUTHRIE,
	S. H. GUMP.

The President appointed, as a Committee on Unfinished Business, Drs. EARLEY, G. W. ALLYN, and CHRIS. LANGE.

Dr. ALLYN read the report of the Allegheny County Medical Society.

On motion, it was referred for publication.

On motion of Dr. J. B. ROBERTS, of Philadelphia, the resolutions offered by the Publication Committee were taken up.

Resolved, That hereafter every motion directing an expenditure of funds shall appropriate a definite, carefully estimated amount, or so much thereof as may be required for the purpose indicated. And that all propositions to appropriate money, not accompanied by such an estimate of amount, shall be referred to the Publication Committee, either to report upon or with authority to act.

This was unanimously adopted.

Resolved, That the standing resolution, "That each county medical society be instructed to report, with its list of members, the place and date of graduation, or other requirements for practice of each, as registered under the action of the new law," be rescinded.

This was also adopted.

A motion by Dr. P. D. KEYSER, of Philadelphia, to lay the third on the table was negatived, and the resolution was adopted.

Resolved, That the resolution requiring the printing of the programme in the *Transactions* be hereby rescinded.

On motion of Dr. E. A. WOOD, of Pittsburg, all these resolutions were referred to the Committee on Constitution and By-laws, to be incorporated in their report.

On motion, the Society adjourned to meet at 2 P. M.

Afternoon.

The President called the Society to order at 2 P. M.

Dr. J. C. WILSON, of Philadelphia, read the Address in Medicine.

Dr. THOS. J. MAYS, of Philadelphia, read the Address in Hygiene, which was discussed by Drs. LAPLACE, L. F. FLICK, J. C. WILSON, J. J. AULDE, C. W. DULLES, and MAYS.

A motion of Dr. S. BURDSALL, of Susquehanna, to suspend the rules to allow Dr. LAPLACE time to complete his remarks was lost.

Dr. J. M. BATTEN, of Allegheny, read a paper, "Cases of Labor (340)."

A motion to suspend the rules and permit him to finish his paper was adopted. The paper was discussed by Drs. LONGAKER, DUNMIRE, and BATTEN.

The Permanent Secretary announced that a charge had been presented against a member, and moved its reference to the Judicial Council. Adopted.

The Secretary read a telegram from the President of the Board of Health of Philadelphia, asking the aid of the Society in behalf of a Bill before the City Councils, to prevent the Adulteration of Milk.

On motion, it was laid on the table.

The Secretary read an invitation from the Mississippi Valley Medical Association to attend the next meeting at Louisville, in September.

On motion of Dr. EARLEY, the invitation was accepted, and the Secretary was requested to acknowledge it.

The Secretary read the following :

READING, PA., May 21, 1890.

Dr. WM. B. ATKINSON.

Permanent Secretary Pennsylvania State Medical Society.

The Berks County Medical Society instructed me to extend a cordial invitation to the State Medical Society to hold its next annual meeting in Reading.

Anticipating the pleasure of an acceptance, particularly in view of the fact that we have not had the honor of receiving the State Medical Society for a period of many years, I remain,

Yours, very truly,

C. W. BACHMAN,

Secretary.

On motion, the invitation was referred to the Committee on Nominations.

The resignation of Dr. J. R. TAYLOR from the Judicial Council was read and also referred to the Committee on Nominations.

The Permanent Secretary read his report of the meeting held in Pittsburg in June, 1889.

On motion of Dr. BISHOP, it was approved and incorporated with the proceedings of the present meeting.

The Society, on motion, adjourned to meet on Wednesday at 9 A. M.

WEDNESDAY, June 11th.

The President called the meeting to order at 9 A. M.

The Permanent Secretary read the following :

ERIE, May 13, 1890.

Dr. J. B. MURDOCH,

President Medical Society of State of Pennsylvania, Pittsburg, Pa.

MY DEAR DOCTOR: I am sorry to say that I cannot be present at the meeting of the State Society in your city. This I regret, especially because of the place of the meeting and the gentlemen whom I would meet there, but I expect to sail on the 21st of the present month for a prolonged visit to Europe and the Continent in quest of health, of which I now have none to spare.

Present my kindest regards to the brethren of the Society, and assure them that, whether on sea or in foreign lands, on the day of your meeting I shall recollect them with pleasure and interest, and be with you at least in spirit.

Yours fraternally,

J. L. STEWART.

On motion of Dr. FLICK, the rules were suspended and Dr. DULLES was placed on the programme to read his report on "Hydrophobia" after the announcement of the Nominating Committee.

The Permanent Secretary called the roll of the counties and read the following as constituting the Committee on Nominations :

Allegheny, J. C. Lange ; Armstrong, P. P. Hunter ; Berks, Israel Cleaver ; Blair, S. M. Ross ; Bucks, A. M. Cooper ; Butler, E. P. Logan ; Cambria, W. B. Lowman ; Centre, R. G. Hayes ; Chester, E. V. Swing ; Clarion, J. F. Somerville ; Cumberland, W. W. Dale ; Dauphin, H. McGowan ; Erie, J. J. Finnerty ; Fayette, J. S. Hackney ; Franklin, G. S. Hull ; Greene, T. B. Hill ; Huntingdon, G. G. Harman ; Lancaster, Alex. Craig ; Lycoming, H. G. McCormick ; Mercer, M. M. Magoffin ; Mifflin, B. H. Van Valzah ; Montgomery, E. M. Corson ; Montour, S. S. Schultz ; Northampton, Traill Green ; Perry, J. H. Briner ; Philadelphia, J. B. Roberts ; Somerset, S. S. Good ; Susquehanna, S. Birdsall ; Venango, C. W. Coulter ; Washington, Wray Grayson ; Westmoreland, F. L. Marsh ; York, D. K. Gotwald.

On motion of Dr. W. W. DALE, the Committee were allowed to meet at once.

Dr. C. W. DULLES, of Philadelphia, made some remarks on Hydrophobia, which were discussed by Drs. J. H. PACKARD, LAPLACE, C. R. EARLEY, HENGST, and DULLES.

A motion by Dr. P. D. KEYSER, of Philadelphia, to suspend the rules and allow Dr. LAPLACE to reply, was rejected.

Dr. E. A. WOOD introduced Dr. I. N. LOVE, of St. Louis, Mo., and on motion, the visitor was invited to a seat on the platform, and accorded the privileges of the House.

Dr. W. H. DALY, of Allegheny, read the Address in Laryngology.

Dr. J. A. LIPPINCOTT, of Allegheny, read a paper on "The Intra-ocular Syringe in Cataract Extraction."

Dr. L. F. FLICK, of Philadelphia, read the Report of the Committee on Medical Examiners.

Dr. J. B. ROBERTS, of Philadelphia, moved to print the report in full and pay the bill of expenses of the Committee.

Dr. C. W. DULLES, of Philadelphia, moved to amend by omitting the record of the vote on the Bill in the Legislature.

Dr. C. R. EARLEY, of Elk, moved to lay the whole subject on the table.

Dr. DULLES asked if this motion was in order, as the report must be accepted or rejected.

The President put the motion, which was lost.

After much discussion the amendment was rejected, and the original motion to accept and publish was adopted.

On motion of Dr. H. G. MCCORMICK, of Lycoming, it was resolved that the presidents of the different county medical societies entitled to

representation in this Society shall constitute a Committee which shall be known as the Legislative Committee. The President of the State Society shall call a meeting at some convenient point, of this Committee, as soon as possible after the adjournment of the State Society. At this meeting the Committee shall proceed to organize, by the election of such officers as they may think proper, and take such action as they may deem best to secure the passage of a medical law that will give protection to the people of this State against incompetent practitioners of medicine. The necessary expenses of this Committee to be paid by the State Society. Provided, that in the event that the president of any county society neglects or refuses to serve, the chairman of this Committee shall appoint some one to represent that county.

Dr. S. AYRES, of Allegheny, reported for the Committee on Management of Insane Asylums, as follows :

Mr. PRESIDENT: Before offering the report of the Committee, I beg to make a brief explanation. Soon after the selection of the Committee, two years ago, I communicated, as chairman, with the members in regard to coming together to prepare a report.

In reply, some thought that, as the membership was quite widely distributed, it would not be practicable to hold a meeting, but they suggested that the report might be prepared by correspondence. This plan was submitted to all the members, and a majority favored it.

I therefore set about and wrote a form of report as a basis for consideration, and sent it to the members with the request that they make any alteration or amendment desired, and vote on the different sections thus amended.

This involved an endless correspondence, and it soon became obvious that no conclusion could be reached.

The matter was thus necessarily postponed until the Committee could personally discuss it. I called a meeting yesterday afternoon, at which were present six members—all, I believe, that are in the city—and I herewith read the resolution passed :

Resolved, That the Chairman of this Committee be instructed to make a report containing a statement of the fact that one member of the Committee declined to serve; another one is absent in Europe, and that as only six of the remaining members are present, they do not feel that they would fulfil the requirements of the resolution under which they act by presenting conclusions which, under these circumstances, could not represent the views of the Committee.

SAMUEL AYRES,
Chairman.

Dr. E. A. WOOD moved to substitute :

Resolved, That it is the sense of this Society that the duties of the Medical Superintendents of our State Insane Asylums should be restricted exclusively to the treatment of the insane inmates; also, that one or more female physicians should be appointed whose duty, under the control of the Super-

intendent, shall be to have charge of the female insane patients, and we urge the Legislature to enact such laws as shall make these reforms obligatory.

The subject was discussed by Drs. SCHULTZ, JACKSON, McKENNAN, BISHOP, PANCOAST, and TRAILL GREEN, when Dr. AYRES, by request, read a minority report of the Committee.

After further discussion by Drs. CURWEN, GERHARD, DALY, and WOOD, the substitute was adopted by a vote of forty-seven to twenty-five.

The Permanent Secretary announced that the President had appointed as the Auditors of the accounts of the Treasurer, Drs. GREEN, CORSON, and DALE.

On motion, the Society adjourned until 3 P. M.

Afternoon.

Dr. TRAILL GREEN called the Society to order at 3 P. M.

Dr. H. MCGOWAN, of the Committee on Nominations, reported as follows :

President.

Alexander Craig,	Lancaster County.
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Vice-Presidents.

1st. F. H. Vanvalzah,	Mifflin	“
2d. T. McKennan,	Washington	“
3d. Wm. S. Foster,	Allegheny	“
4th. S. D. Bell,	Butler	“

Permanent Secretary.

Wm. B. Atkinson,	Philadelphia County.
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Recording Secretary.

Chas. W. Dulles,	Philadelphia County.
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Corresponding Secretary.

Israel Cleaver,	Berks County.
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Treasurer.

George B. Dunmire,	Philadelphia County.
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Committee of Publication.

Edward Jackson,	Philadelphia County.
G. W. Guthrie,	Lycoming County.
S. H. Gump,	Bedford County.

The next place of meeting, Reading, on the first Tuesday of June, 1891.

*Censors.**First District:* J. W. Walk, of Philadelphia.*Fourth District:* A. M. Smith, of Snyder.*Fifth District:* John Montgomery, of Franklin, and J. C. Gable, of York.*Sixth District:* D. P. Miller, of Huntingdon, and H. M. Lichty, of Somerset.*Seventh District:* J. S. Hackney, of Fayette.*Ninth District:* J. A. Ritchey, of Venango, and J. Creswell, of Clarion.*Tenth District:* A. A. Woods, of Erie.*Delegates to the American Medical Association.*

H. G. McCormick,	Lycoming County.
S. Bursdall,	Susquehanna "
W. B. Lowman,	Cambria "
J. P. Connelly,	Lycoming "
G. G. Harman,	Huntingdon "
J. Q. Robinson,	Westmoreland County.
C. W. Coulter,	Venango "
M. M. Magoffin,	Mercer "
Ray Grayson,	Washington "
F. L. Marsh,	Westmoreland "
J. Y. Shearer,	Berks "
A. S. Harshberger,	Mifflin "
J. F. Summerville,	Clarion "
T. C. Rich,	Lycoming "
S. S. Good,	Somerset "
J. S. Hackney,	Fayette "
T. B. Hill,	Green "
J. A. Armstrong,	Armstrong "
J. B. Roberts,	Philadelphia "
W. B. Ulrich,	Delaware "
S. P. Bartleson,	" "
D. K. Gotwald,	York "

International Medical Congress.

J. L. A. Burrell,	Lycoming County.
J. A. Ritchey,	Venango "
E. M. Corson,	Montgomery "
J. K. Weaver,	" "
A. M. Miller,	Lancaster "
J. K. Lineaweaver,	" "

State Society of New Jersey.

R. B. Ewing,	Chester County.
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State Medical Society of Maryland.

J. A. Snively,	York County.
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Judicial Council.

		TERM EXPIRES
H. C. Wood,	Philadelphia.	1891.
J. T. Carpenter,	Pottsville.	1891.
E. A. Wood,	Pittsburg.	1891.
A. M. Miller,	Bird-in-Hand.	1892.
W. T. Bishop,	Harrisburg.	1892.
Traill Green,	Easton.	1892.
S. S. Schultz,	Danville.	1893.
J. H. Packard,	Philadelphia.	1893.
John Curwen,	Warren.	1893.

On motion, the Berks County Medical Society was requested to appoint the Committee of Arrangements.

On motion of Dr. R. B. MOWRY, of Allegheny, the report was then adopted unanimously:

The following was read :

YORK, PA., June 10, 1890.

Dr. ATKINSON,

Secretary Pennsylvania State Medical Society, Pittsburg, Pa.

The Pennsylvania Pharmaceutical Society, now in session here, sends congratulations.

J. A. MILLER,

Secretary.

On motion of Dr. DULLES, the congratulations were received, and the Permanent Secretary was directed to acknowledge the same.

On motion of Dr. WOOD, the congratulations of this Society were sent to the West Virginia State Medical Society, in session at Charlestown.

The Permanent Secretary having announced the resignation of Dr. J. R. TAYLOR, one of the Judicial Council,

On motion of Dr. BISHOP, Dr. E. A. WOOD was elected to fill the vacancy.

Dr. J. TYSON, of Philadelphia, read a paper on the "Management of Obstinate Dropsies."

Dr. S. AYRES read a paper on "Trephining in Traumatic Insanity," which was discussed by Drs. J. B. ROBERTS and MURDOCH.

Dr. J. B. ROBERTS, of Philadelphia, read the Address in Surgery, which was discussed by Dr. MOWRY.

Dr. TRAILL GREEN, of Northampton, read a paper on the "Chemistry of Cooking," which was discussed by Drs. ALLYN, WOOD, and others.

Dr. J. H. PACKARD, of Philadelphia, read a paper on "Ether Anæsthesia."

Dr. J. J. AULDE, of Philadelphia, a paper on "Arsenite of Copper."

Dr. J. B. ROBERTS, on behalf of Dr. J. M. TAYLOR, of Philadelphia, read the report on Clinical Research.

At the Annual Meeting of the Medical Society of the State of Pennsylvania, held at Philadelphia, June, 1888, it was

Resolved, That a Committee be appointed called "The Committee on Clinical Research." That it shall consist of fifteen members.

That the duties of the Committee shall be to coöperate with observers in placing on record clinical observations for the special purpose of increasing the scope and interest of papers read before the Annual Meeting of the State Medical Society of Pennsylvania.

That it shall act as a medium of intercommunication between the members of the State Society, for the collection of notes, specimens, and the like, as it is hoped by such aggregation to increase and utilize the value of the material thus obtained.

That it shall encourage and aid in research those to whom competent libraries are inaccessible.

The following Committee was then appointed by the President: Drs. John B. Roberts, John H. Musser, W. W. Keen, J. Madison Taylor, Frederick A. Packard, B. C. Hirst, and George Dock, of Philadelphia; J. Z. Gerhard, of Harrisburg; Rita B. Church, of Williamsport; Chas. McIntyre, of Easton; Thos. D. Dunn and Laura J. Hulme, of West Chester; Lewis H. Taylor, of Wilkes Barre; J. S. Carpenter, Jr., and George Halberstadt, of Pottsville.

Report of Committee on Clinical Research.

The Committee on Clinical Research begs leave to report that it has clearly called the attention of the members of the State Medical Society to the advantages derivable from a fuller use of this Committee as a means of collecting and utilizing a large mass of valuable clinical material which might otherwise be lost to science.

It had hoped for more encouragement in placing in this safe official repository, notes of cases, specimens, photographs, statistics in mass or in part, etc., so that they might receive systematic arrangement and be exhibited, or placed in museums, or be otherwise recorded and kept for the use of members themselves, or such persons as might desire permission to use them.

It regrets to say that so far comparatively little interest has been manifested in the work, but the Committee expresses the hope that in another year it will succeed far better.

A few notes of interesting cases have been received, but no valuable series of such.

A few isolated pathological specimens also have come in, some of which have been examined and reported upon, but only enough to make a fair beginning.

The Committee entertains large hopes of the usefulness of such an organization, when its functions shall be better known, if it be the pleasure of

the Society to continue it; and it has in consideration plans for enlarging its possibilities for usefulness in the coming year.

Dr. George Dock, having moved West, severed his connection with the Committee, and Dr. Frederick A. Packard, the Assistant Secretary, was selected to do the microscopic work devolving upon the Committee.

Appended is a copy of the notice sent by the Committee to every member of the Society.

All of which is respectfully submitted.

J. MADISON TAYLOR,
Secretary.

The Committee on Clinical Research of the Medical Society of the State of Pennsylvania earnestly begs leave to solicit members of the State Medical Society to send it some account, however brief, of whatever of clinical interest may occur in their practice during the coming year, be this material in the shape of notes (short or elaborate), pathological specimens, photographs, or descriptions of such, slides, etc.

The special object of this plan, as set forth in the resolution, shall be to encourage the writing of papers by those who have not purposed doing so, and to increase the scope and interest of those who had so determined, by adding to their own observations those of others on kindred subjects.

By hearty coöperation with this plan, any writer can collect observations of a far greater number of cases than is possible from those made in hospitals, whence, necessarily, nearly all statistics are now drawn.

Any member of the State Society who shall send a specimen to this Committee may, if he so desire, have it exhibited in his own name before the appropriate society, where it will receive the attention of the largest possible audience. After this the specimen will be returned to its owner, or deposited wherever he may designate.

If any member desires to prepare a systematic paper involving the collection of a large number of clinical observations, he may, through the Secretary of the Committee, send out letters of inquiry to the members of the State Medical Society of Pennsylvania, provided he defray all the expenses of printing, postage, etc., which may be incurred.

J. MADISON TAYLOR, M.D.,
Secretary.

On motion, the report was received and directed to be entered on the minutes, and the Committee was continued.

Dr. ROBERTS having resigned from the Committee, and there being another vacancy, the President was empowered to fill the vacancies.

On motion, the Society adjourned to meet at 9 A. M. on Thursday.

THURSDAY, June 12th.

The President called the Society to order at 9 A. M.

The President announced that he had appointed Drs. W. B. ULRICH, of Delaware Co., and W. SNIVELY, of Allegheny Co., to fill the vacancies on the Committee on Clinical Research.

The Auditors reported that they had examined the accounts of the Treasurer and found them correct, the balance in hand being \$198.52.

Dr. FRANCES N. BAKER, of Chester, then read the Address in Obstetrics.

On motion of Dr. ULRICH, the rules were suspended to enable her to complete the reading.

Dr. J. M. DUFF, of Allegheny, read a paper on "Rational Midwifery."

Dr. G. B. DUNMIRE, of Philadelphia, read a paper on "Secale Cornutum in Labor."

Dr. M. PRICE, of Philadelphia, read a paper on "The Requirements of an Abdominal Surgeon."

Dr. W. B. ULRICH asked as to the publication of the papers by their authors, but the President declared the subject not in order until new business.

The papers were then discussed by Drs. WHITCOMB, LONGAKER, E. E. MONTGOMERY, TRAILL GREEN, C. R. EARLEY, PRICE, BISHOP, and BUCHANAN.

Dr. EDWARD JACKSON, of Philadelphia, read a paper on "Suppurating Ulcer of the Cornea."

The Permanent Secretary read the report of the Judicial Committee on the case of a member.

PITTSBURG, PA., June 11, 1890.

In the case of the charges brought by the Medical Society of Centre County against Dr. A. B. Brumbaugh, of the Huntingdon County Medical Society, the Judicial Council would report that, after careful consideration of the matter, it was decided that in the opinion of the Council Dr. Brumbaugh had inadvertently committed an indiscretion, such as it is extremely desirable that members of the profession should avoid.

JOHN CURWEN,
JOHN H. PACKARD,
TRAILL GREEN,
A. M. MILLER,
W. T. BISHOP.

Dr. G. H. CLINE, of Jersey Shore, read a paper on "Errors of Refraction Developed by Loss of Accommodation."

A communication from Mr. J. H. STEIN, First Vice-President of the Pennsylvania Pharmaceutical Association, stated that it is desired by that Association that the fraternal relations heretofore existing between that Society and the State Medical Society be reestablished, and in view of this they will appoint a delegate at their present meeting, now in session at York, to represent them at our meeting in 1891,

and desire the State Medical Society also to appoint a delegate to their session of that year.

On motion of Dr. W. B. ATKINSON, this was agreed to, and the President appointed Dr. W. T. BISHOP, of Dauphin.

On motion of Dr. DULLES, it was resolved that the President appoint a committee of three members, who shall secure the incorporation of the Medical Society of the State of Pennsylvania, naming as Trustees for the first year the present members of the Judicial Council.

Dr. W. C. BANE, of Allegheny, read a paper on "Sarcoma of the Choroid."

Adjourned until 2 P. M.

Afternoon.

The President called the Society to order at 2 P. M.

The report of the Committee to Revise the Constitution, etc., was offered, and on motion, it was ordered to be printed in the *Transactions*, and the Committee was continued.

Dr. H. R. WHARTON's paper on "Prolapse of the Rectum in Children," was read by title.

Dr. ALICE BENNETT, of Montgomery, read the Address on Mental Disorders.

On motion of Dr. AYRES, the author was tendered a vote of thanks for this very able and interesting paper.

Dr. G. M. SHILITO, of Allegheny, read a paper on the "Application of Dry Heat by Steam," and exhibited his apparatus, which was discussed by Dr. W. H. PANCOAST.

The paper of Dr. J. V. SHOEMAKER, of Philadelphia, on the "Physiological and Therapeutic Action of Sulphur," was read by title.

Dr. A. B. BRUMBAUGH, of Huntingdon, read a paper on "La Grippe, or Epidemic Influenza."

New business being now in order, Dr. M. PRICE, of Philadelphia, offered the following:

That the Committee on Publication be authorized to omit from the volume of *Transactions* the Address in Laryngology by Dr. Wm. H. Daly, which was published in a daily paper of Pittsburg, this morning, together with his portrait.

The motion was seconded by Dr. DULLES.

After some discussion, Dr. WOODS, of Erie, moved that action be deferred until Friday.

This was discussed by Drs. FINNERTY, KOENIG, and MCCARRELL.

A motion of Dr. SHAW, of Allegheny, to lay the resolution on the table, was negatived, 18 to 25.

The original motion was then adopted, 33 to 16.

On motion, the Society adjourned to meet on Friday at 9.30 A. M.

FRIDAY, June 13th.

The President called the Society to order at 9.30 A. M., and announced the following appointments:

To prepare the Address in Medicine, Dr. J. CHRIS. LANGE, of Allegheny; in Surgery, Dr. O. H. ALLIS, of Philadelphia; in Obstetrics, Dr. J. MILTON DUFF, of Allegheny; in Hygiene, Dr. A. B. BRUMBAUGH, of Huntingdon; in Mental Disorders, Dr. SAMUEL AYRES, of Allegheny; in Ophthalmology, Dr. J. A. LIPPINCOTT, of Allegheny.

Dr. MURDOCH, in retiring from the Presidency, thanked the Society for their courtesy, and appointed Drs. W. B. ULRICH and EARLEY to conduct the President-elect, Dr. ALEX. CRAIG, to the platform.

Dr. CRAIG, in assuming the position, alluded to his predecessors.

Dr. W. T. BISHOP alluded to the death of Dr. HENRY H. SMITH, late President of the Society.

On motion of Dr. BISHOP, the thanks of the Society were tendered to Dr. MURDOCH for the able manner in which he had presided over the sessions, to the members of the Allegheny County Medical Society, and to the citizens and the ladies for their courteous entertainment of the members.

Dr. MURDOCH again alluded to the services of the late Dr. HENRY H. SMITH, and on his motion, the Committee of Publication were requested to insert in the next volume an engraving or plate of Dr. Smith, and make it a memorial tablet.

Drs. I. N. LOVE and C. R. EARLEY again offered thanks to the Allegheny County Medical Society, to the people of Pittsburg, and especially to the ladies.

The President then declared the Society adjourned, to meet in Reading on the first Tuesday of June, 1891.

WILLIAM B. ATKINSON,
Permanent Secretary.

REPORT OF THE COMMITTEE TO REVISE THE CONSTITUTION AND BY-LAWS.

CONSTITUTION.

ARTICLE I.—TITLE OF THE SOCIETY.

THIS Society shall be known by the name and title of “THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.”

ARTICLE II.—OBJECTS OF THE SOCIETY.

The objects of this Society are : the organization of the medical profession in the State of Pennsylvania ; the advancement of medical science ; the extension of medical knowledge ; the elevation of professional character ; the protection of professional interests ; the promotion of all measures calculated to prevent or relieve suffering, to cure disease, to prolong life, and thus render the medical profession most useful to the public and subservient to the welfare of the community.

ARTICLE III.—MEMBERSHIP.

This Society shall consist of delegates from the various county medical societies within the State of Pennsylvania, and of permanent members.

ARTICLE IV.—OFFICERS, AND THEIR TERMS OF OFFICE.

SECTION 1. The officers of this Society shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Fourth Vice-President, a Secretary, an Assistant Secretary, a Corresponding Secretary, a Treasurer, and as many Censors as there are county organizations represented in this Society, who shall be elected at the annual meeting for a term of one year ; and a Judicial Council,¹ consisting of nine members, three of whom shall be elected at each annual meeting for a term of three years. All officers shall be elected by ballot, and shall serve until their successors are chosen.

SEC. 2. None but delegates and permanent members in actual attendance shall be eligible to the offices of President, Vice-Presidents, Secretaries, Treasurer, or to serve as delegates from this Society ; but permanent members, not present, may be chosen Censors, or to serve in the Judicial Council, or to deliver the annual addresses, or to serve upon committees.

¹ Of the nine members of the Judicial Council originally chosen, three were elected for one year, three for two years, and three for three years : hence three vacancies occur each year.

ARTICLE V.—MEETINGS.

The Society shall hold an annual meeting at such time and place as may be determined upon from year to year.

ARTICLE VI.—FUNDS.

Funds for defraying the expenses of this Society shall be raised by an annual assessment on each county society, which assessment shall be in proportion to the number of delegates to which each Society is entitled.

ARTICLE VII.—CODE OF ETHICS.

The code of ethics of the American Medical Association shall be binding on all members of this Society, and of the respective county medical societies.

ARTICLE VIII.—AMENDMENTS.

Propositions for amending this Constitution must be in writing, and signed by at least five members. Such propositions must be read at an annual meeting, printed as a part of the minutes, and lie over until the following annual meeting for action, when they may be enacted by an affirmative vote of two-thirds of the members present.

BY-LAWS.

ARTICLE I.—DELEGATES, PERMANENT MEMBERS, AND MEMBERS BY INVITATION.

SECTION 1. The delegates to this Society shall receive their appointment from the various county medical societies in the State of Pennsylvania. All officers of this Society, all members appointed to deliver annual addresses, and chairman of all committees having reports to present, shall be delegates *ex-officio*.

SEC. 2. Before admission to a seat in this Society each delegate shall produce a certificate of delegation, signed by the president or secretary of the county society of which he is a member, be enrolled as a delegate, and sign the rules and regulations of this Society.

SEC. 3. Every delegate shall hold his appointment for one year, or until his successor is elected.

SEC. 4. Every member of a county society having once served as a delegate shall thereafter be a permanent member of this Society so long as he conforms to all its rules and regulations, and is a member in good standing of a county society entitled to representation herein. A permanent member (not a delegate), before admission to a seat at the sessions of this body, shall present a certificate setting forth the above facts, be registered, and have complied with all the requirements pertaining to a delegate.

SEC. 5. Permanent members, duly registered and present at a meeting, shall be entitled to all the privileges of delegates.

SEC. 6. Delegates to this Society from any State society entitled to representation in the American Medical Association, shall, by presenting certificates of delegation duly signed, be entitled to seats and to participate in the affairs of the Society, as in the case of members, except that they shall not be entitled to vote, to hold office, or to permanent membership.

SEC. 7. Any physician of reputable standing, after an introduction from, and being vouched for by, at least two members present, may, by vote of the Society, be made a member of the meeting by invitation, with the privilege of participating in the discussions.

ARTICLE II.—ORGANIZATION AND MEMBERSHIP OF COUNTY SOCIETIES.

SECTION 1. It shall be the privilege of members of the medical profession residing in any county of this State to organize a county medical society; *provided*, that public notice of the meeting for that purpose be given, and that all regular physicians in good standing residing in the county be invited to join therein. Such society may elect its own officers, and adopt any rule or set of rules for its government that does not contravene those of this Society. *Provided*, also, that in any county where no society exists the members of the profession in such county shall have the privilege of uniting with the society of an adjoining county; which membership shall continue only during the time that no organized society exists in the county in which such persons reside. If, however, it is more convenient for a physician residing in one county to attend the meetings of an adjoining county society, he may, with the consent of the censors of the appropriate district or districts, become a member of such society.

SEC. 2. No one shall be admitted to membership in a county society who is not a graduate of a regular medical school, and is not of good moral and professional standing.

SEC. 3. Any physician who shall procure a patent for a remedy or an instrument of surgery, or who sells or deals in patented remedies or nostrums, or who shall give a certificate in favor of a patented or proprietary remedy or patented instrument, or who shall enter into an agreement with an apothecary to receive any compensation or patronage for sending prescriptions to that apothecary, shall be disqualified from becoming or remaining a member of a county society.

ARTICLE III.—PRIVILEGES AND REQUIREMENTS OF COUNTY SOCIETIES.

SECTION 1. As soon as a county society is organized, the secretary thereof shall transmit to the censors of the district in which said society is comprised two copies of its rules and regulations, with the names of the officers and members; and as soon as one of these copies is returned with the approval of the censors, or a majority of them, the society shall be and is hereby authorized to elect one delegate to this Society for every five of its members, and an additional delegate when the society contains three members more

than five or any multiple of five. If, however, any society should not contain five members, it shall be entitled to one delegate.

SEC. 2. At least two weeks before each annual meeting of this Society, the secretaries of the several county societies shall forward to the Secretary of this Society certified lists of their respective delegates elected to attend the meeting.

SEC. 3. Each county society shall report annually to this Society a list of its officers and members, all new rules which have been adopted, and such other matters as may be deemed interesting. Brief notices shall also be given of its members who have died during the year.

SEC. 4. Should any annual report from a county society exceed three pages of foolscap, or its equivalent, it shall be accompanied by a brief abstract of the same, which only may be read before this Society.

SEC. 5. In case of failure on the part of any county society to report its membership at the annual meeting of this Society, the assessment provided for in Article VI. of the Constitution shall be based upon the last published report of said county society.

SEC. 6. Each county society shall remit to the Treasurer of this Society the amount of its annual assessment within thirty days after receiving notice thereof; if not paid at the expiration of this time, ten per cent. additional shall be collected. Until this indebtedness is liquidated no society shall be entitled to its quota of the published *Transactions*.

SEC. 7. Every county society shall enforce upon its members the observance of the code of ethics of the American Medical Association, and shall be authorized to censure, suspend, or expel any member duly convicted of violating any provisions of the code, or found guilty of any unprofessional conduct.

SEC. 8. Any member of a county society who is censured, suspended, or expelled, shall have the right to appeal to the censors of the district in which said society is comprised; this appeal, however, must be made within three months after the date of the act of censure, suspension, or expulsion. The decision of the censors in the matter shall be reported to this Society at its next annual meeting for final adjudication.

SEC. 9. Members of this Society shall be debarred from consulting or holding professional intercourse with any practitioner who has been expelled from his county society for violation of the code of ethics, or for unprofessional conduct.

SEC. 10. If any county society shall neglect or refuse to pay its annual assessment, or to investigate a charge of unprofessional conduct, or of violation of the code of ethics on the part of any member, and to discipline such member if found guilty, or to perform any act required by the laws of this Society, or shall commit any act which may be considered derogatory to the honor of the medical profession, such society shall, during its delinquency, have all its rights and privileges suspended, and its delegates shall not be entitled to register nor occupy seats at the sessions of this Society. Neither shall any permanent member, nor delegate *ex-officio*, connected with such society, be entitled to a seat during its delinquency. Any society having its

privileges suspended for three successive years shall be dropped from the roll of societies entitled to representation herein.

SEC. 11. Each county society shall have authority to adopt such measures as it may deem most efficient for the mutual improvement of its members, and for exciting a spirit of emulation, for facilitating the dissemination of useful knowledge, for promoting friendly intercourse among them, and for the advancement of medical science.

SEC. 12. County societies shall encourage the preparation of papers by their members, communicating therein the result of observation and experience on any subject connected with the healing art, or the notes of rare and interesting cases. Any paper deemed sufficiently meritorious may be referred to this Society through the Committee on Arrangements and Credentials.

SEC. 13. Each county society shall hold at least two meetings each year.

ARTICLE IV.—CENSORIAL DISTRICTS.

The State shall be divided into thirteen censorial districts, and each district shall have a separate board of censors. This board shall be formed by selecting one censor from each county society in the district. The districts shall be constituted as follows:

First. Philadelphia, Delaware, and Chester.

Second. Bucks, Northampton, Lehigh, Carbon, Monroe, and Pike.

Third. Montgomery, Berks, and Schuylkill.

Fourth. Lancaster, Lebanon, Dauphin, Perry, and Snyder.

Fifth. Cumberland, York, Adams, Franklin, and Fulton.

Sixth. Juniata, Mifflin, Huntington, Blair, Cambria, Bedford, and Somerset.

Seventh. Fayette, Westmoreland, Indiana, and Armstrong.

Eighth. Allegheny, Washington, and Greene.

Ninth. Butler, Beaver, Lawrence, Mercer, Venango, and Clarion.

Tenth. Erie, Crawford, Warren, Jefferson, Forest, Elk, McKean, Potter, and Cameron.

Eleventh. Clearfield, Centre, Clinton, Tioga, Lycoming, Northumberland, and Union.

Twelfth. Montour, Columbia, Luzerne, and Sullivan.

Thirteenth. Bradford, Wyoming, Susquehanna, and Wayne.

ARTICLE V.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at the meetings of the Society, preserve order, perform such other duties as custom and parliamentary usage require, and deliver an annual address. He shall appoint all committees, unless it be otherwise ordered by the rules or a vote of the Society, and shall be *ex officio* a member of all committees. He shall not be eligible to the office two terms in succession.

The incoming President, at each annual meeting, or as soon thereafter as practicable, shall appoint a member to deliver, at the next meeting, an Address in Medicine; another, an Address in Surgery; another, an Address in Obstetrics; another, an Address in Hygiene; another, an Address in

Mental Disorders; and another, an Address in either Ophthalmology, Otology, or Laryngology. He shall also make the necessary appointments to all standing committees for the succeeding year.

SEC. 2. One of the Vice-Presidents shall, at the request of the President, or in his absence, officiate in his place.

SEC. 3. The Secretary shall keep correct minutes of the proceedings of the Society, and, when approved, transcribe them into a book to be kept for that purpose. He shall have charge of the minute book, all papers, documents, etc., belonging to the Society, other than those pertaining to the Treasurer, Corresponding Secretary, or the Publication Committee, and shall keep them during the interval of the meetings of the Society. Within ten days after adjournment he shall furnish the Publication Committee with a correct copy of the minutes for publication in the volume of *Transactions*. He shall notify all members of committees of their appointment, and request an answer in writing in regard to acceptance. He shall furnish the chairman of every special committee with the names of his associates on the committee, and with a copy of the resolution or resolutions under which the committee was appointed. He shall prepare, as far as possible, a list of the delegates elected to each session, and forward the same to the Committee on Arrangements and Credentials prior to the work of registration. He shall forward credentials to members elected delegates to the American Medical Association, and to all other societies. He shall give notice of the annual meetings of this Society one month in advance, through such medical journals published in the State as shall be designated by the Committee on Publication, and shall perform such other duties appertaining to his office as may from time to time be required.

SEC. 4. The Assistant Secretary shall assist in all the duties of the Secretary during the meetings of the Society, and officiate in case of absence of the latter officer.

SEC. 5. The Corresponding Secretary shall conduct such correspondence of the Society as usually appertains to that office.

SEC. 6. The Treasurer shall, as soon as the expenses of the Society can be determined, apportion the annual assessments upon the various county societies, according to Article VI. of the Constitution, and notify each society of the amount of its indebtedness. He shall forward to every county society that has complied with Section 6, Article III., of the By-laws, its quota of the *Transactions*. He shall collect and receive all money due to the Society, and disburse the same only upon orders authorized by the Society, signed by the President and Secretary, when the Society is in session, and when not in session, by the Committee on Finance; and these orders shall be vouchers for his expenditures. At or immediately before each annual meeting, he shall submit his accounts to the Committee on Finance for audit, and shall annually present a statement of the finances of the Society. Prior to each meeting he shall furnish the Committee on Arrangements and Credentials with the list of names of county societies, if any, whose delegates are not entitled to register, according to Article III., Section 9, of the By-laws.

SEC. 7. The Censors of each district shall examine the rules and regulations of every newly organized county society therein, and, if they find

nothing in said rules and regulations contrary to the letter and spirit of those of this Society, they shall endorse on each of the two copies thereof the word "Approved," with their signatures, and the date of their approval, and transmit one copy to the secretary of the county society, and the other to the Secretary of this Society. They shall inquire into the merits of every case of appeal from the decision of a county society by a member who has been censured, suspended, or expelled—*provided*, the appeal be made according to Article III., Section 7, of the By-laws—and report in writing their decision thereon to the county society, and also to this Society at the following meeting. They shall consider and dispose of, in like manner, all questions affecting the code of ethics which may be referred to them either by a county society or by this Society. The decision of the Censors in every case must be signed by a majority of the board.

SEC. 8. The Judicial Council shall take cognizance of, and decide upon, all questions of an ethical or judicial character that may be referred to it by this Society. All questions of a personal character, including complaints and protests, and all questions on credentials shall be referred at once, without discussion, to the Judicial Council. Every decision of the Council shall be in writing, signed by a majority of the members thereof, be reported to this Society at the earliest practical moment, and shall be final. The Council shall preserve permanent records of all its proceedings.

ARTICLE VI.—COMMITTEES.

SECTION 1. All special and standing committees, except when otherwise ordered by the rules or a vote of this Society, shall be appointed by the presiding officer, subject to the approval of the Society. The following standing committees shall be appointed annually:

- (1) A Committee on Arrangements and Credentials.
- (2) A Committee on Publication.
- (3) A Committee on Nominations.
- (4) A Committee on Finance.
- (5) A Committee on Pharmacy.

SEC. 2. The Committee on Arrangements and Credentials shall consist of seven members. Its chairman shall be a member of the county society in which county the next annual meeting of this Society is to be held, and shall be appointed by the Committee on Nominations, subject to the approval of this Society. The right to appoint the other six members of the Committee may, by vote of this Society, be delegated to the aforesaid county society. This committee shall, one month in advance of each annual meeting, prepare a complete programme for the entire session, and have printed as many copies of the same as may be deemed requisite. It shall examine all papers referred to it for a place on the programme, and shall have authority to exclude such as it may deem inexpedient to be read before the Society. It shall make all other necessary arrangements for the meeting, and superintend the registration of delegates and permanent members. It shall render an annual report of its proceedings.

SEC. 3. The Committee on Publication shall consist of five members, of

which the Secretary and Treasurer shall form part. The chairman shall, as far as possible, be a resident of the town or city in which the *Transactions* are to be published, and shall be appointed by the Committee on Nominations, subject to the approval of the Society. It shall be the duty of this committee to supervise the printing, publication, and binding of the proceedings of the Society into a volume to be styled the *Transactions of the Medical Society of the State of Pennsylvania*. This volume shall contain the minutes of the business proceedings of the annual meeting, reports of committees and of county societies, addresses, and the scientific papers, with the discussions thereon, subject to the discretion of the committee; *provided*, however, that no decided change or abbreviation of any scientific communication shall be made without the consent of the author. The volume shall also contain a list of the various county societies, with the names of their officers and members. The list of members shall not only be arranged alphabetically, but shall indicate also the medical college from which each member was graduated, the year of graduation, and the date of membership in this Society. A carefully prepared index shall be added to the volume. The committee shall obtain bids for printing and binding the volume of *Transactions*, and shall award the work to the lowest responsible bidder. The committee shall report annually.

SEC. 4. The Committee on Nominations shall be formed in the following manner: Immediately after adjournment of the afternoon session of the first day of the annual meeting, the delegation of each county society shall be called together, and shall, by a majority vote, select one member for the committee; and the members thus selected by the various delegations present shall constitute the Committee on Nominations. The committee shall organize by electing a chairman and secretary. It shall be the duty of this committee to nominate candidates for the various offices of the Society, a chairman for the Committee on Arrangements and Credentials, a chairman for the Committee on Publication, delegates to the American Medical Association, and to State medical societies. The committee shall also determine the time and place of the next meeting of this Society. It shall report as the first item of business at the afternoon session of the second day of the meeting.

SEC. 5. A Committee on Finance, consisting of three members, shall be appointed, whose duty it shall be to examine all bills and accounts, and consider all questions of a financial character that may be referred to it by the Society. During the interval of the meetings this committee shall examine all bills and accounts, and authorize their payment, when found correct. It shall audit the Treasurer's accounts, and shall report annually.

SEC. 6. The Committee on Pharmacy shall consist of five members, whose duty it shall be to consider all matters pertaining to pharmacy; and the committee shall be and is hereby empowered to represent this Society in conference with a similar committee appointed annually by the Pennsylvania Pharmaceutical Association. It shall report annually the result of the labor of the joint committees.

SEC. 7. A special committee of three shall be appointed at an early stage

of each annual meeting for the purpose of ascertaining what unfinished business there is, if any, and shall report to the Society as early as possible.

SEC. 8. All reports of committees shall be in writing, signed by a majority of the members thereof, or by the chairman only, when so authorized by the committee.

ARTICLE VII.—DELEGATES FROM THIS SOCIETY.

SECTION 1. Delegates to the American Medical Association, and to the several State societies, shall be appointed annually through the Committee on Nominations. No delegate shall be sent to any State medical organization which is not entitled to representation in the American Medical Association.

SEC. 2. Each delegation shall report briefly, in writing, to this Society each year, such items of general interest as may have claimed the attention of the societies to which they were respectively delegated.

SEC. 3. Should any delegate find that he shall not be able to attend to the duties belonging to his appointment, he shall promptly notify the President of this Society of the fact, who, in conjunction with the censors of the district to which the delegate belongs, shall appoint another member to fill his place.

ARTICLE VIII.—ADDRESSES, PAPERS, AND DISCUSSIONS.

SECTION 1. No annual address, except that of the President, shall exceed in its delivery thirty minutes.

SEC. 2. No scientific paper presented to this Society shall exceed in its delivery twenty minutes.

SEC. 3. In discussion, no member shall be permitted to speak longer than ten minutes, nor a second time on the same communication, except in the case of a member presenting said communication, who shall be entitled to fifteen minutes in closing the debate. *Provided*, however, that the time allotted for delivering an address or presenting a paper may be extended, or that a member may be permitted to speak longer than ten minutes, or a second time, by a majority vote of the Society.

SEC. 4. It shall be the duty of every member who proposes to present a scientific paper to the Society to forward the title of the same, together with a brief abstract thereof, to the chairman of the Committee on Arrangements and Credentials at least one month previous to the annual meeting at which the paper is to be read.

SEC. 5. All addresses and papers presented to the Society shall be placed in the hands of the Committee on Publication within ten days after adjournment. The insertion in the *Transactions* of any communication received after that time shall be optional with the committee.

SEC. 6. Authors of papers are required to return proofs to the chairman of the Publication Committee within two weeks after receiving the same; otherwise such papers may be omitted from the volume.

SEC. 7. The Committee on Publication shall have full discretionary power to omit from the volume of *Transactions* any paper or discussion that may be referred to it by the Society, unless specially instructed to the contrary by

vote of the Society. It shall also have power to direct the condensation of all papers, discussions, or reports of county societies, within such limits as it may specify.

ARTICLE IX.—ORDER OF BUSINESS.

SECTION 1. The meeting shall be called to order at the appointed hour by the President, or, in his absence, by one of the Vice-Presidents. In case neither of these officers is present, a chairman *pro tempore* shall be appointed. The order of business shall then continue as follows:

(1) Invocation of Divine blessing.

(2) Presentation of register of delegates, permanent members, and members by invitation.

(3) Address of welcome, followed by the presentation of the programme of the meeting prepared by the Committee on Arrangements and Credentials.

SEC. 2. The programme, when adopted, shall constitute thereafter the order of business; and it cannot be changed nor suspended, except for a definite purpose, a limited time, and by an affirmative vote of two-thirds of the members present.

SEC. 3. The first item of business upon the programme for each morning session, after the first day, shall be reading the minutes of the preceding day; and the last item upon the programme, next to final adjournment, shall be reading the minutes of the proceedings of the closing day. Unfinished business and new business shall be among the last items for consideration each morning and afternoon session.

SEC. 4. Members may exchange positions upon the programme, provided that written notice of the proposed change be given to the President and Secretary.

SEC. 5. Any member not ready to respond when his name is called shall forfeit his position on the programme in favor of the next on the list.

SEC. 6. All forfeited privileges, and all other matters unavoidably postponed shall come under the head of unfinished business.

SEC. 7. All volunteer papers, reports, etc., not upon the programme, shall come under the head of new business.

SEC. 8. Sections 2, 4, 5, 6, and 7, of this Article, shall be printed on the programme of each annual meeting.

ARTICLE X.—RULES OF ORDER.

1. No question shall be open for discussion, except when brought forward by a motion duly made and seconded, and distinctly stated by the presiding officer.

2. Every motion shall be reduced to writing by the mover, when so requested by the presiding officer or any member.

3. The President or any member may call for the division of a question, provided it comprehends more than one distinct proposition. A motion, however, to commit with instructions, or to strike out and insert, shall be deemed indivisible.

4. While a question is under consideration no other motion shall be enter-

tained, except to adjourn, for the orders of the day, to lie on the table, for the previous question, to postpone to a certain time, to refer to a committee, to amend, to postpone indefinitely; which several motions shall have precedence in the order in which they are named. But in order to present any motion a member must first obtain the floor.

5. A motion to amend an amendment is in order, but not to amend an amendment to the amendment.

6. A motion substituting a different motion on the same subject for the one under consideration shall have the same rank, in order of precedence, as a motion to amend.

7. A motion for adjournment shall always be in order, except when the Society is voting on a question, or while a member is speaking.

8. Motions for the previous question, to lie on the table, to take from the table, and for adjournment, shall always be put without debate.

9. The yeas and nays shall be called on a question when demanded by one-fourth of the members present at the meeting; and the vote shall be recorded upon the minutes. When the yeas and nays are taken the President shall vote last.

10. When a motion has once been acted upon by the Society it cannot be considered again at the same session, except by a motion to reconsider.

11. No question shall be reconsidered except upon a motion made and seconded by two members who voted with the majority when the question was decided; and unless submitted at the same session at which the vote was taken.

12. The mover, with the consent of the seconder, may withdraw any motion previous to its amendment or commitment, or to the question upon its final passage being put; but such action shall not preclude any other member from renewing the same motion. If withdrawn, the proceedings had thereon shall not appear on the minutes.

13. When a blank is to be filled the question shall be first taken on the largest sum, greatest number, and longest time.

14. When a member speaks he shall rise, address his remarks to the presiding officer, and confine himself strictly to the question under consideration.

15. No member shall be interrupted while speaking, except by a call to order, or by a member to explain, which latter privilege shall be allowed only to a limited extent.

16. If any member in debate transgresses the rules of the Society, the President shall, or any member may, through the President, call him to order; and he shall then immediately take his seat, unless permitted to explain and continue.

17. No member shall be allowed to speak more than twice to the same motion, except by permission of the Society; and the second speech shall not be allowed until every member choosing to speak has spoken. The member who presents a report or resolution shall be entitled to close the discussion thereon.

18. The presiding officer shall not take part in any discussion while in the chair, but may assign his reasons for deciding a question of order. He shall

decide all questions of order, subject to the right of any member to appeal to the Society; in which case the member appealing shall first state his reasons for the appeal, and then the presiding officer his reasons in support of his decision, after which the question of sustaining the Chair shall be put without any further discussion.

10. In determining all questions of order not provided for in these rules, the Society hereby adopts Roberts's *Manual of Rules of Order* as its guide.

ARTICLE XI.—MEETINGS AND QUORUM.

SECTION 1. The sessions of the Society shall be held annually, and each session shall continue for three days, or longer, if required by the business of the Society.

SEC. 2. For transaction of the ordinary business of the Society twenty members shall be a quorum; but for scientific or literary purposes, unless an actual count be called for, a quorum shall always be presumed. For amending the Constitution or By-laws forty members shall constitute a quorum.

ARTICLE XII.—AMENDMENTS

Every proposition for amending these By-laws must be presented in writing, and signed by at least three members. By unanimous vote a proposed amendment may be adopted at the meeting at which presented; but if objection be made, it shall lie over until the next annual meeting, when, if it receive an affirmative vote of two-thirds of the members present, it shall be declared adopted.

All of which is respectfully submitted.

W. M. WELCH,

Chairman.

L. K. BALDWIN,

E. A. WOOD,

(Except Section 5 of By-laws.)

P. Y. EISENBERG.

REPORT OF COMMITTEE ON MEDICAL EXAMINERS AND LICENCERS BILL.

YOUR Committee was appointed by and in accordance with the following resolutions, which were attached to the report of the Committee on the Medical Examiners Bill for 1888, and which were unanimously adopted by the Society :

“*Resolved*, That a committee of five be appointed by the President to secure the coöperation of county medical societies and individuals interested in the subject; and to urge upon the State Legislature the enactment of a law essentially identical with that proposed by this Society (see *Transactions*, 1887, pp. 37-40) and favorably reported to the House of Representatives at the last session of the Legislature.

“*Resolved*, That the sum of one hundred dollars, or as much thereof as may be required, is hereby appropriated to meet the expenses of such committee.”

Your Committee, upon consultation with members of the profession, found that the bill, which had been favorably reported to the Legislature, met with considerable opposition within the profession, because of the prominence it gave to sectarian medicine, and because of some little inaccuracies and verbal obscurities which it contained. A conference was accordingly called of committees of various societies, and of prominent members of the profession to consider the bill carefully and amend it so as to make it satisfactory to all. Every word and every line of the bill received the most careful consideration in this conference, and a number of minor amendments were adopted, none of which changed the identity of the bill. After the bill had been revised by this conference it was submitted to Hon. James W. Walk, M.D., a member of this Society, and representing the fifteenth district of Pennsylvania in the House of Representatives, for such further revision as he might deem necessary to make it constitutional and legislative in its phraseology. The bill, as it came from the hands of Dr. Walk, was by all pronounced to be a most excellent one, and seemed to give general satisfaction. Dr. Walk kindly consented to father the bill in the House.

In order to bring it prominently before the profession, the Committee had seven thousand copies of the amended bill, together with an address to the medical profession, printed, and had copies sent to every practitioner of medicine in Pennsylvania. The address was signed by the members of the Committee, by the members of committees of various coöperating societies, and by the associate members of your Committee throughout the State. A

copy of the amended bill and of the address, with the names attached, is appended to this report.

Through the kind coöperation of the profession throughout the State, both by individual and by organized effort, your Committee was enabled to educate the public to the importance of such legislation as is provided for in our bill. The medical and secular press were almost unanimous in support of the bill while it was pending before the House, and popular comment everywhere was in its favor.

The bill passed committee, and was placed upon the calendar of the House early in the session. Had the profession been as active in its support of it then as it was later on in the session, it would have passed through all the stages necessary to become law without serious interference. But because of the slowness of the profession about giving active energetic support, interested persons, fearful of losing their trade-mark, were enabled, by practical politics, so to emasculate it on second reading as to make it a worse than useless instrument for good, and it was consequently abandoned.

The following members of the Legislature voted against the bill as presented by your Committee: Bruno Ernst, Clanmar P. Hopkins, Augustine S. Roberts, Charles R. Gentner, John J. Mullaney, William M. Kidd, William F. Stewart, Edward M. Craig, John H. Fow, Henry S. Myers, John A. J. Ennis, Erwin F. Knight, John H. Riebel, Nathan L. Jones, William H. Brooks, John W. Bain, Benjamin Jones, C. Wesley Thomas, William Bunch, Joseph G. Richmond, Horatio P. Connell, C. Henry Fletcher, William B. Rose, and Samuel C. Dingee, of Philadelphia; Charles W. Robison, George Shiras, William T. Marshall, Michael B. Lemon, James F. Richards, Thomas J. Chalfant, Alfred Marland, D. R. Jones, and John W. Nesbit, of Allegheny; Andrew J. Elliott and Samuel Bruce Cochrane, of Armstrong; John F. Dravo and Hartford P. Brown, of Beaver; Nathan C. Evans and W. Scott Mullin, of Bedford; C. S. W. Jones and Albert P. McDonald, of Blair; Milton O. Loomis, of Bradford; Christian E. Hindenach, of Bucks; Joseph Thomas and R. Irwin Boggs, of Butler; Allen S. Beck, Nathaniel S. Kauffman, John E. Pautsch, and Cyrenus W. Kutz, of Berks; John S. Rhey, of Cambria; John C. Johnson, of Cameron; William M. Allison, of Centre; John W. Hickman, Lewis H. Evans, and William Wirt McConnell, of Chester; Alfred W. Smiley and Christian Brinker, of Clarion; P. S. Weber and John F. Farrell, of Clearfield; John U. Shaffer, of Clinton; James T. Fox and William Krickbaum, of Columbia; H. Wallace Brown and Alonzo A. Potter, of Crawford; Samuel M. Wherry and Jesse P. Ziegler, of Cumberland; William E. Barnes, Valentine Lenker, and David A. Boyer, of Dauphin; Ward R. Bliss, Jesse M. Baker, and Isaac P. Garrett, of Delaware; William R. Flickinger, B. B. Whitley, and John D. Bentley, of Erie; George W. Campbell and Charles S. Beatty, of Fayette; Charles A. Randall, of Forest; Cyrus T. Keefer and William C. Kreps, of Franklin; P. M. Lytle and William Henry Stevens, of Huntingdon; E. E. Allen, of Indiana; Francis A. Weaver, of Jefferson; William Hertzler, of Juniata; W. W. Franklin, C. C. Kauffman, and George H. Ranck, of Lancaster; John B. Brown, of Lawrence; David H. Roper and Henry C. Wagner, of Lehigh; Elisha A. Coray, William L. Williams, John

F. Neary, and P. E. Caffrey, of Luzerne; William E. Burdick, of McKean; Henry Hall and James S. Fruit, of Mercer; Nathan M. Lesh, of Monroe; Joseph A. Shoemaker, Austin L. Taggart, Theodore W. Bean, Charles Moore, and C. Tyson Kratz, of Montgomery; J. William Flad, William H. Thomas, and Richard Chapman, of Northampton; Jacob M. Follmer, of Northumberland; William R. Schwartz, of Perry; George W. Dodge, of Potter; William M. Bachert, W. Ramsay Potts, C. W. Brower, and Elias Davis, of Schuylkill; Aaron S. Helfrich, of Snyder; James L. Pugh and Noah S. Miller, of Somerset; William Waddle, of Sullivan; William E. Maxey, of Susquehanna; Isaac Squires, of Tioga; Alfred Hayes, of Union; O. P. Morrow, of Venango; C. C. Thompson, of Warren; J. K. Billingsley and James S. Stocking, of Washington; James E. Woodmansee, of Wayne; George P. Blackburn, A. H. Machesney, and John G. Foight, of Westmoreland; Lorenzo Whitney, of Wyoming; John L. Shillito, and Harvey Haines, of York.

The following gentlemen voted against the amendment and for our bill; John Donahue, Joshua Russell, Henry K. Boyer, John M. Scott, Frank M. Riter, George A. Quigley, James W. Walk, Richard Patterson, John M. Smith, and Robert R. Dearden, of Philadelphia; John J. Brown, of Adams; William McCullough, William H. White, and Samuel E. Stewart, of Allegheny; Augustine Willet and William H. Robbins, of Bucks; John M. Rose, of Cambria; D. Smith Talbot, of Chester; Bayard T. Dickinson, of Dauphin; A. A. Clay, of Elk; George W. Neff, of Fayette; William L. Reed, of Indiana; Jacob C. Gatchell and Winfield S. Smith, of Lancaster; William P. Morrison, of Lawrence; Henry G. Walter, of Lebanon; M. B. Harwick, of Lehigh; Walter E. Ritter and George C. Wood, of Lycoming; James Collins, of Luzerne; Michael F. Sando, Nathan C. Mackey, and M. E. McDonald, of Lackawanna; John T. Griffith, of McKean; William P. Stevenson, of Mifflin; Jacob P. Hoffa, of Montour; Lafayette Rowland, of Pike; John B. Donaldson, of Washington; and Matthew J. McKinnon, of York.

The following gentlemen were absent or refrained from voting; Samuel Strien, Henry Nichols, James C. Hassett, James D. Lee, and William H. Keyser, of Philadelphia; Francis Cole, of Adams; James L. Graham, James Bulger, Samuel M. Lafferty, and David E. Weaver, of Allegheny; John E. Faulkner and Lafayette J. Culver, of Bradford; Samuel D. Missimer, of Berks; Edward M. Mulhearn, of Carbon; John H. Holt, of Centre; William H. Andrews, of Crawford; George W. Skinner, of Fulton; John Blair, of Green; A. C. Baldwin, of Lancaster; Thomas H. Capp, of Lebanon; John Gaffey, of Lycoming; George J. Stegmaier, of Luzerne; John P. Kelly, of Lackawanna; Lyman B. Speir, of Mercer; Daniel F. Gallagher, of Northumberland; William E. Jones and Eugene Donohoe, of Schuylkill; Dewitt C. Titman, of Susquehanna; George T. Losey, of Tioga; Frederick W. Hays, of Venango; S. S. Hager, of Wayne; George McCormick, of Westmoreland; I. C. Dellone, of York.

Your Committee desires to call especial attention to the kind support which it received from the physicians of the House, of whom there were seventeen, and to the very earnest efforts of Hon. James W. Walk to have

the bill passed. They also desire to call attention to the fact that many prominent physicians went to Harrisburg at their own expense in support of the bill.

Your Committee presents a list of contributors to a fund for expenses, and also an itemized statement of the assets and expenditures of the Committee. The expenditures somewhat overbalance the assets, and your Committee asks that the Society make an appropriation to cover the balance.

Very respectfully,

WM. F. WAUGH,
EDWARD JACKSON,
E. A. WOOD,
LAWRENCE F. FLICK.¹

ASSETS.

Appropriation of State Society	\$100 00
Donations :	
Dr. H. C. Wood	10 00
Dr. John B. Roberts	10 00
Dr. Edward Jackson	10 00
Dr. Wm. F. Waugh	10 00
Dr. Traill Green	5 00
Dr. James Tyson	2 00
Dr. Lawrence F. Flick	10 00
Total	<hr/> \$157 00

EXPENDITURES.

To printing 100 copies medical examiners bill . . .	\$6 00
To printing 250 copies medical examiners bill . . .	7 50
To printing 100 copies medical examiners bill . . .	6 00
To printing 200 copies medical examiners bill . . .	8 00
To printing and distributing 7000 copies medical examiners bill	161 00
To expenses of Dr. Jackson, as presented in itemized statement	9 00
To expenses of Dr. Waugh, as presented in itemized statement	35 60
To expenses of Chairman, as presented in itemized statement	28 00
Total	<hr/> \$261 10
Total deficit	\$104 10

¹ Dr. L. H. Taylor did not have an opportunity to sign the report, as he was not present at the meeting of the State Society.

AN ACT

To establish a State board of medical examiners and licensors and to define the powers and duties of such board.

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the same, *That* within six months after the passage of this act the Governor shall appoint a State Board of Medical Examiners and Licensers consisting of nine members, three of whom shall serve for one year, three for two years, and three for three years, and hereafter he shall each year appoint three members to serve for three years in place of those whose terms then expire. They shall be graduates of some legally chartered college or university having the power to confer medical degrees, who shall have practised medicine or surgery for a period of not less than five years, but none of whom shall be members of the faculty or staff of any medical college or university. *Provided*, that in the appointment of the said Board the members shall be chosen from lists of names, each list containing the names of not less than eighteen registered physicians submitted by the State medical societies of the Commonwealth of Pennsylvania. In default of the submission of any such lists, the appointments shall be made by the Governor, at his discretion, from among the registered physicians of the Commonwealth having the qualifications specified in this section. Each member of the said Board shall receive a certificate of appointment from the Governor, and shall file the same within thirty days with the Prothonotary of the Court of Common Pleas of the county in which said member is registered under existing law.

SEC. 2. The said Board shall be known by the name and style of *The State Board of Medical Examiners and Licensers of the Commonwealth of Pennsylvania*, and shall have a common seal, and may make and adopt all necessary rules, regulations, and by-laws not inconsistent with the Constitution and laws of this Commonwealth or of the United States, and shall have power to locate and maintain an office for the transaction of its business. Five members of the said Board shall constitute a quorum.

SEC. 3. Upon the organization of the said Board it shall be determined by lot which three members shall serve for a term of one year, which three for a term of two years, and which three for a term of three years. Every appointment to fill a vacancy or vacancies in the said Board shall be for the unexpired term, and the said vacancy or vacancies shall be filled by the Governor within sixty days after notification of the same in accordance with the provisions of Section 1 of this act, and he shall have power to remove any member of said Board for criminal, scandalous, or dishonorable conduct.

SEC. 4. The said Board shall organize at Harrisburg upon the first Tuesday of January, A. D. 1890, and shall elect from its own number a president and a secretary who shall also act as treasurer, both of whom shall hold their offices for the term of one year or until their successors are chosen.

SEC. 5. The members of the said Board shall each receive a salary not exceeding three hundred dollars per annum, to be paid out of the fees for examination. The secretary and treasurer shall receive an additional salary, to be fixed by the Board, and shall file with the president of the Board a bond in the sum of one thousand dollars for the faithful performance of his duties. The necessary expenses of the said Board shall also be paid out of the fees, except as provided in Section 12 of this act, and any balance remaining from the fees after the disbursements herein specified shall be paid into the treasury of the Commonwealth.

SEC. 6. The said Board shall examine all applicants for licence to practise medicine or surgery in this Commonwealth who are properly qualified according to the provisions of Section 7 of this act, and no one shall be excluded or rejected on account of adherence to any special system of practice. It shall hold two stated meetings each year, one at Pittsburg on the first Tuesday in April, and one at Philadelphia on the first Tuesday in May, respectively, and may hold special meetings at such times as it may deem proper. All examinations, except as to manipulative procedures, shall be in writing, and all examination papers, together with the reports and action of the Examiners thereon, shall be preserved among the records of the said Board for a period of five years, during which time they shall remain open for inspection at the office of the said Board.

There shall be examinations in anatomy, physiology, chemistry, toxicology, hygiene, principles and practice of medicine, surgery, and obstetrics, and each applicant upon receiving from the secretary of the Board an order for examination, shall draw by lot a confidential number which he or she shall place upon his or her examination paper, so that when said papers are passed upon by the Examiners the latter shall not know by what applicant said papers have been presented, and upon each day of examination all candidates shall be given the same set or sets of questions.

SEC. 7. Any person on paying ten dollars to the secretary of the said Board, and on presenting satisfactory proof of being over twenty-one years of age, of good moral character, and of having received a sufficient preliminary education, as defined by said Board, and a diploma from some legally incorporated medical college or university having authority to confer degrees in medicine, shall be entitled to examination by the said Board, and in case of failure at any such examination, shall have the privilege of a second examination without the payment of any additional fee.

Each applicant who shall have passed a satisfactory examination shall receive from the said Board, under seal, a licence to practise medicine and surgery in the Commonwealth of Pennsylvania, and the said Board may, at its discretion, grant licences without examination to persons holding licences from similarly constituted Boards of Examiners or Boards of Health in other Commonwealths.

SEC. 8. The secretary shall record in a book to be kept for the purpose in the office of the said Board the name, age, sex, residence, date, and place of graduation of each applicant, together with the date of examination, the examination number, the examination average on each branch, the general

average, and date of issue of licence in case such licence is granted. Said book shall be open to public inspection. And on or before the last day of December of each and every year the said Board shall publish or cause to be published a list of the names and addresses of such persons as shall have received licences from the said Board within twelve months immediately thereto preceding.

SEC. 9. After the first day of February, 1890, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this act and shall have exhibited to the Prothonotary of the Court of Common Pleas of the county in which he or she resides a licence duly granted to him or her by the said State Board of Examiners and Licencers, whereupon he or she shall be entitled, upon the payment of one dollar, to be duly registered in the office of the Prothonotary of the Court of Common Pleas, and any person violating the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof in the Court of Quarter Sessions of the county where the offence shall have been committed, shall pay a fine of not less than fifty nor more than five hundred dollars for each offence.

SEC. 10. Nothing in this act shall apply to commissioned medical officers of the United States army or navy, or of the United States Marine-Hospital Service, nor to any member of the house or resident staff of any legally chartered medical college or university or hospital during his term of service therein, nor to any physicians of other States meeting duly registered physicians of this State in consultation, nor to those practising dentistry exclusively; and nothing in this act shall be construed to prohibit the practice of medicine and surgery by any practitioner who shall have been duly registered before the first day of February, 1890, according to the terms of the act entitled "An Act to provide for the Registration of all Practitioners in Medicine and Surgery," approved the eighth day of June, 1881.

SEC. 11. For the purpose of this act, the words "practise medicine or surgery" shall mean to treat or attend any person for money, gift, or reward.

SEC. 12. The sum of one thousand dollars is hereby appropriated to meet the necessary and legitimate expenses of the said Board for the year A. D. 1890.

SEC. 13. Section 4 of "An Act entitled to provide for the Registration of all Practitioners of Medicine and Surgery," approved the eighth day of June, Anno Domini 1881, is hereby repealed.

ADDRESS TO THE MEDICAL PROFESSION OF PENNSYLVANIA.

GENTLEMEN AND LADIES: Our profession has reason for self-respect and self-confidence, not only for its famous leaders and rank and file of intelligent, conscientious practitioners, but because it does not fail to note its own shortcomings, and endeavor to remedy them. It is universally recognized that the worst of these spring from the admission to our ranks of many who

are entirely unprepared to assume our responsibilities. Every worthy member of the profession has been startled, alarmed, and put to shame, by the gross ignorance or incompetence of some one who parades before the world as his professional brother, and whose professional qualifications are certified to in the same language, and often by the same signatures, as his own. For low grade schools have not sent out all discreditable members of the profession. Good doctors have been inveigled into taking the diploma of some of the worst. While from the best, men have been certified, with all formality, "honest and learned in medicine," who were grossly dishonest, ignorant, and in every way unfit for the practice of that profession. The results of this, the depressing influence exerted on the worthy practitioner, by unworthy competition; the loss of years from other work, in which one, incompetent as a physician, might truly serve the community; the failures and disappointments; the backslidings into quackery, are too often forced on your attention, to need recounting here. Nor is it needful to point out to you the injury done the community, when to the imperfections of our art are added the errors of needless ignorance, and when, in addition to the medical advisers it requires, it has to support a host of incompetents; for these will somehow contrive to live off it.

To urge, however, the importance of raising the standard of requirements for admission to our profession, we will venture to remind you how low that standard now is, by quoting some of the answers given by regular graduates in medicine, most of them from prominent medical schools, when undergoing examination for admission to the medical service of the navy, or before State boards of medical examiners.

"The corpus callosum is that part of the dura mater which separates the cerebrum from the cerebellum;" "the vertebral artery communicates with the cavernous sinus;" "the aortic artery makes its exit between the first and second ribs;" the membranous part of the urethra is below the triangular ligament, which is an extension of Gimbernat's ligament;" "the peritoneum is a serious membrane lining the belly and extending into the chest covering, the heart and lungs." "The boiling point of Fahrenheit is about 300°;" "the normal temperature of the human body is from 112° to 140°;" "the temperature of the body in African fever is 96°, much above the normal temperature of the body, which is 92° F.;" "the temperature of the system is variable, in health the cuticle stands at 70°;" "the average respiration are 70° per minute." "The hot bath should have a temperature of 75°;" "the symptoms of delirium tremens, of which I have had numerous cases, are dilated pupils, hot, dry skin, slow pulse and glassy eye." "Galen introduced vaccination or inoculation in the seventeenth century." "Acupressure may be pressure by a tourniquet, by a V-shaped bandage, by a pad, or by the hand;" "acupressure is made with the finger or any other instrument." "The laryngoscope is a short tube, which you put in the throat and look through." "The tuberosity of the tibia is the part broken in Pott's fracture." "Ranula is a disease of the eye." "Coxalgia is an inflammation of the coccyx." "Scarlatina is an eruption of the head and face." "What is dengue or break-bone fever?" "A fever that comes on soon after

the bones are broken." "The patient should be cautioned against moving, for fear the bones should break." "The best way to facilitate the expulsion of the placenta is to let the woman get up and walk about the room, allowing five minutes to elapse after delivery before requiring her to get up and walk." "Phymosis is the result of old age." "The difference between galvanism and electricity is that one of them is the substance itself and the other its use." "The most simple form of galvanic battery is the Leyden jar." "Phosphorus burns and makes nitrogen gas;" "in apothecaries' weight there are sixteen ounces to the pound;" "the technical name of rhubarb is columbo." The following were given by doctors learned in the science and art of medicine as the proper doses of the respective drugs, for administration by the mouth: Powdered cantharides, 40 grains; tartar emetic, 10 grains; corrosive sublimate, 1 grain; atropia, 60 grains, or 10 grains hypodermically. One did not know what placenta prævia was; another believed pneumonia to be a particular disease of one lung, and pleurisy the name given to it when it affected the other. A third wrote that for orchitis: "extirpation of one or both testes must be submitted to, being the last and only resource to be had that can possibly save the patient." A fourth, having absented himself from an examination, explained that he "had been ill with cholera infantum."

Comment is unnecessary, but it should be remembered that of the regularly graduated M.D.'s coming before the State Board of Examiners, in States that have such boards, over 20 per cent. are refused licence to practise for just that kind of ignorance, and that by the naval board 68 per cent. are rejected.

This state of things has not passed unnoticed by the profession. A clear understanding of it led, more than anything else, to the organization of National, State, and county medical societies; and if denunciation of the evil, vigorous resolutions, and earnest exhortation of the medical schools could have done it, the evil would certainly have been remedied. From the first it has been clearly seen that the trouble lay in the competition of the schools in the matter of granting degrees. But for a long time it was believed that all the schools needed to do was to resolve to do better, and immediately all would go well. At last, however, we have learned that medical schools, like other living things, are influenced and controlled by environment. That the instant they cease to conform to environment they cease to live; and that an essential feature of that environment is the desire of the student to get admission to the profession on as easy terms as possible, compelling that competition in the granting of admission should ever be toward a lower standard of requirement. The student seeks, other things being equal, the school that gives the best teaching and the easiest examinations. So long as this was not understood, many plans, including a great variety of legal enactments, were tried, but proved unavailing. Nearly every State in the Union has tried one or more laws regulating the practice of medicine which proved quite ineffectual. But as it has become clear that competition, while tending to raise the grade of teaching, tended to lower the standard of requirements for the degree which secured admission to the

profession, there has grown up a demand that the licensing of practitioners shall be separated from the business of medical teaching. Such separation has been tried in various States, ranging from Minnesota to Mississippi, and has proven thoroughly efficient and satisfactory, raising the standard of the profession and guarding the interests of the community. In Illinois, West Virginia, and Iowa, the sole power to grant a licence to practise is vested in a State Board of Health, which can grant the licence without examination to graduates of schools coming up to a standard of requirement which the board has full power to fix; but all other applicants must pass an examination. This plan has done much good, but it has one weak point. A school may ostensibly conform to the standard of requirements, and still in its examinations, which are private, so temper their severity to the naked ignorance of the candidate, as to let through the very ones that it is desired to exclude; while better educated men coming from other institutions are kept out or forced to undergo the examination. To this extent such a plan is both unjust and inefficient.

Not open to any such criticism is the plan of a State Board of Medical Examiners, who are required to examine all applicants for the licence to practise; which has been carried out in North Carolina, Alabama, Mississippi, Virginia, and Minnesota. This plan has been endorsed by the American Medical Association and advocated in its journal; has been adopted by the Medical Society of the State of Pennsylvania, and the adoption reaffirmed at three successive annual meetings with steadily increasing unanimity; has been approved by all the larger and more active county medical societies and by other local societies in various parts of the State. A bill embodying this plan was favorably reported at the last session of the State Legislature, and failed of final passage only because there was not sufficient pressure behind it to keep it well forward in the fierce competition for legislative time and attention. A similar bill, of which a copy is herewith enclosed, has been introduced during this session of the Legislature. We ask you to give it your prompt, hearty, efficient support, by bringing it to the attention of your local medical society; by explaining the need for such a law to those with whom you come in contact; and by urging, *at the earliest possible moment, and by personal interview, if possible*, your representatives in the Legislature to favor, and work for its passage. It is as much the province of the medical profession to lead and educate public opinion as to questions of this kind, as it is to enlighten it with regard to the causation of typhoid fever, the prevention of cholera, or the care of the insane.

Committee: Drs. Lawrence F. Flick, Edward Jackson, William F. Waugh, E. A. Wood, and L. H. Taylor, of the State Medical Society of Pennsylvania.

Drs. J. B. Roberts, W. Osler, H. Leffmann, G. H. Griffiths, and W. H. Parish, of the Philadelphia County Medical Society.

Drs. H. C. Wood and C. K. Mills, and J. A. Clark, Esq., of the Medical Jurisprudence Society.

Drs. A. Trau, W. S. Stewart, G. F. Stubbs, W. Buckby, and W. H. Gloninger, of the Medico-Legal Society.

Drs. G. W. Vogler, P. Leidy, L. B. Hall, J. W. Millick, and E. W. Holmes, of the Northern Medical Society.

Drs. T. W. Helsby and J. P. Turner, of the Polyclinic Medical Society.

Associate Members: Adams, A. P. Beaver; Allegheny, E. A. Wood and W. H. Daly; Armstrong, W. H. Stewart; Beaver, W. C. Simpson; Bedford, A. Enfield; Berks, Martin Luther; Blair, S. M. Ross; Bradford, E. D. Payne; Bucks, H. Pursell, J. N. Richards, and F. Swartzlander; Butler, J. B. Showalter; Cambria, D. W. Evans; Cameron, S. S. Smith; Carbon, E. H. Kistler; Centre, A. Hibler; Chester, J. Price; Clarion, J. F. Ross; Clearfield, J. D. Hartswick and W. A. Means; Clinton D. P. Ball; Columbia, I. W. Willits; Crawford, C. P. Woodring; Cumberland, R. L. Sibbet, G. W. Ziegler, and H. H. Longsdorf; Dauphin, C. A. Rahter; Delaware, L. Fussell; Elk, W. L. Williams; Erie, J. S. Steward; Fayette, J. A. A. Linahan; Forest, W. C. Coburn, M. B. Cook, and J. W. Morrow; Franklin, J. B. Amberson and G. S. Hull; Fulton, N. B. Shade and J. R. Duffield; Greene, J. F. Williams; Huntingdon, G. C. Borsh; Indiana, W. A. McChesney and I. P. Klingensmuth; Jefferson, C. M. Matson; Juniata, A. W. Sheller; Lackawanna, M. J. Williams and L. M. Yates; Lancaster, S. T. Davis; Lawrence, J. L. McKee; Lebanon, H. B. Gloninger; Lehigh, E. G. Martin; Luzerne, S. W. Trimmer; Lycoming, B. H. Detwiler and H. G. McCormick; McKean, E. O. Kane; Mercer, A. T. Clark; Monroe, J. B. Shaw; Montgomery, J. E. Bannan; Montour, James Ogleby and J. P. Hoffa; Northampton, George D. Stahley; Northumberland, J. F. McClure; Perry, W. R. Cisna and A. D. Vandyke; Pike, G. Emerson; Potter, C. S. French; Schuylkill, D. J. Langton; Snyder, J. W. Seip; Somerset, H. Brubaker; Sullivan, S. T. Colt; Susquehanna, W. W. Fletcher; Tioga, C. W. Webb and Z. E. Krimble; Union, F. C. Harrison; Venango, J. A. Ritchey; Warren, M. S. Guth; Washington, J. B. Donaldson; Wayne, C. A. Dusenberre; Westmoreland, J. H. Lafferty; Wyoming, B. E. Beidleman; York, W. S. Roland.

ADDRESS OF THE PRESIDENT.

THE MEDICAL PROFESSION, MEDICAL LEGISLATION, AND INDIVIDUAL RESPONSIBILITY.

BY J. B. MURDOCH, M.D.,
OF PITTSBURG.

MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, LADIES AND GENTLEMEN: Before taking up the subject of my address, let me say a few words concerning the peculiar circumstances of this meeting.

This is an adjourned meeting of our Society. One year ago when we assembled in this hall to hold our regular annual session, the details of the terrible disaster which had taken place a few days previous at Johnstown were just reaching us.

Those who were present do not need any words from me to tell of the depressing effect of the news. To those of you who were not present, let me say that it was simply impossible to go on with the meeting.

The sadness and gloom which overspread this entire community are indescribable. We felt that it was no time for words, and that to hold any social gatherings under the circumstances would be sacrilege. Every man felt that he must, at once, hasten to the scene of disaster to render such aid as he could to the sufferers. So that, after passing a resolution, emptying the treasury of nearly all the money it contained for the benefit of our suffering brothers, the meeting adjourned.

The example set by this society of appropriating the money in its treasury to our afflicted brethren was followed by nearly every County Medical Society of the State, and I opine that when the history of the State and County Medical Societies of Pennsylvania comes to be written, it will contain no brighter page, nor one of which our descendants will be more proud, than the one which

tells how, when our brothers were swallowed up by the great floods in the spring of 1889, they were not left wholly to despair, but that the treasuries of the Societies were emptied freely into the laps of the sufferers and help and sympathy willingly bestowed. It is a matter of great regret to me that I am not able to give the names of those of our professional brothers who perished in the flood.

Obituary notices prepared by those who knew and loved them best will no doubt be furnished for publication in our volume of *Transactions*.

But we must not, at this time, let our lamentations over the dead too much oppress us. We have duties to the living which must not be omitted. We must do the work now which one year ago we were unable to perform.

This Society, now holding its annual session, was organized in 1848, so that now it has the frosts of more than forty winters to make its age respectable. Every year since the date mentioned have its members gathered together, to take sweet counsel one from another, to compare notes, to advise, to teach, to learn, to do all that could be done to advance the interests of the medical profession, especially here in our own State of Pennsylvania. Like the Israelites of old, you are making your yearly pilgrimage. You have come from the North, from the South, from the East, and from the West, and, like these Israelites, you have brought your offerings with you. You have gathered your yearly harvest, and you are now about to deposit the fruits of your labors in the granary of this Society.

Let me thank you for these your worthy works, and in behalf of our citizens extend to you a most hearty cordial welcome, to this City of Pittsburg.

We are assembled here to-day as medical men, and we here represent the medical men scattered throughout the State. You will pardon me, I trust, if in the selection of my subject, I take one of a general character, and one which may be of interest to the whole body of medical men who essay to practise our useful and time-honored art.

Leaving the discussion of scientific subjects to the gentlemen who have prepared papers, let me make a few remarks, general in their character, upon—1st. The Medical Profession. 2d. Medical Legislation. 3d. Individual Responsibility and Duty.

It will be my aim in this address to hold up to my hearers the example of a few men who, by their genius and labor, have made the medical profession what it is, and it will be my endeavor thus to stimulate in the members of this Society a greater individual effort for the elevation of our profession.

The profession of medicine is not of this century, nor of the last century, but taking its origin in the dim and shadowy outline of Egyptian and Indian art, it has passed on from century to century, gathering strength in its march, accumulating facts and observations; so that now it has a name and a history which knows no superior.

Men of all times; men of all countries; men of all languages have toiled in the great work of laying broad and deep the foundation of our profession. It is not the product of a single mind, or of a single age, but accumulating the products of all minds and of all ages, it presents to-day a history of which all its members may be proud.

Gentlemen, this is a meeting of

THE REGULAR MEDICAL PROFESSION.

To my mind there is a charm in that word "regular." It at once separates those who are thus designated from the amateur, the volunteer, the visionary and the mere experimenter.

It signifies that the one thus designated has made his profession his life-study and his life-work. That after a preliminary training he has brought the best powers of his mind to master his subject. That having searched through the literature of past ages, that having examined the labors of his predecessors, he is willing to accept no dogma such as "*Similia similibus curantur*," nor "*Contraria, contrariis, curantur*," as true, but is guided by the wisdom and experience of the Fathers in medicine, added to his own observation.

In all the professions, and in every calling in life, it is the men who consecrate their lives to their work who gain the confidence and respect of the communities in which they live. And it is thus that the regular medical profession has gained the confidence of the world. In times of serious trouble, it is to the men who have been trained to meet the emergency, to the *regulars*, that the people look for help. When the trouble is trivial, when the situation is not grave, the volunteer, the amateur, and the irregular will have followers; but in the great crisis, when the exigency is great, when

war, anarchy, or pestilence stares the people in the face, it is then that they look for, and trust in, the one who has devoted his life to his work.

At the siege of Lucknow, how anxiously did the few English families there imprisoned long for the regular army, and when the pibroch of the Scotch Highlanders was heard, how welcome to their ears was the sound of the slogan. The prisoners took fresh courage, for they knew it was the regular army of England marching to their relief. So, also, gentlemen, when in 1877, riot was let loose in this city of Pittsburg, when our volunteer soldiers failed to quiet the turmoil, how welcome was the small company of *regulars* who stacked their arms in the Union Station. There were but twenty-two of them under the charge of an insignificant second lieutenant. But it was a branch of the regular army of the United States, and at its sight riot and tumult ceased, and peace and quiet again reigned in our midst.

So, also, how often is it seen in case of disease, when the ailment is slight, when there is only a feeling of malaise or prostration, the patient is willing to trust at first to domestic remedies, to the amateur; but let the symptoms become more severe or prolonged, but still not dangerous, then it is that the impostor, the charlatan, will reap his rich harvest. For months and years, so long as, in his opinion, there is no imminent danger, will the poor deluded sick and suffering creature give all that he has to the impostor for his worthless advice; but let death stare him in the face, let the patient become convinced that there is danger, it is then that the regular doctor is summoned—alas! in many cases too late to avert the disaster.

From the ignorance of the people, and from the success which has attended quackery, I know that many of the more timid of our profession are fearful that the people are losing their confidence in regular medicine; but, gentlemen, this is not so; deep down in the hearts of the people there is an abiding faith in the ability of the regular doctor to combat disease and death more successfully than can be found in any system of medicine founded on a dogma. The position which the profession of medicine holds to-day in the opinion of the people is second to no other profession. I do not even except that of the Gospel minister.

How has this confidence been secured?

It has been by the individual effort of the great men in our profession. The foundation laid by Hippocrates and Galen has been

built upon, and the superstructure as it now stands, is the combined effort of many noble minds all the way down the centuries. Time does not permit of our mentioning even the names of the great men who in ages past have labored to make our profession what it is. Therefore, merely thanking the old masters, let us come down to more recent times. And first, I mention the name of Harvey, who has made his name immortal by his great discovery of the circulation of the blood; of Parè, who taught the world how to control hemorrhage; John Hunter, who taught us how to cure aneurism, and to Edward Jenner, who conferred upon the world the priceless boon of vaccination. Jenner, by his individual efforts in the cause of mankind, has made his name immortal. He found a prophylactic for a loathsome disease, and by taking a small portion of virus from the udder of the cow, was able to exempt a whole community from the ravages of smallpox. It has been known that one attack exempted a person from a subsequent one, and by this baptism in disease, the system was protected from its further power. So it is known that this rule is applicable to scarlatina, to rubeola, and to other diseases. Who dare assert that these diseases, so similar, have not also their prophylactics, and who is the man that will find them? Jenner has robbed smallpox of its terrors and its power. What Jenner of our times, or of this Society, will teach us how to escape an attack of scarlatina. Coming down to our own age and our own times, we find the names of other men who, by their individual efforts, have added much to the stock of medical knowledge, and given dignity to our profession. Such a one was Dr. Ephraim McDowell, who in the wilds of Kentucky did the first ovariectomy. Such a one was Dr. Morton, the discoverer of anæsthesia. Such a one was Dr. J. Marion Sims, who taught the world how to cure those hitherto incurable diseases, vesico-vaginal and recto-vaginal fistulæ. Such a one was Dr. A. G. Walter, of this city, a man whose services to the profession have never been properly recognized; among other contributions which he made to surgery was the opening of the abdominal cavity, in a case of ruptured bladder. In 1862, when there was no precedent for such a procedure, he boldly cut open the abdomen, washed out the peritoneal cavity, and drained the bladder by a catheter retained in the urethra. His patient recovered. This operation was not repeated until eighteen years later, but is now recognized as the proper treatment for such an injury. And now, coming down to

men of our own State and Society, we have such names as Atlee, Gross, Pancoast, Dixon, King, Gallagher, and many others, who have, by their individual efforts in behalf of medicine, added much to the sum of human happiness, and left names which will live in the history of medicine.

Could we take the same liberty with the living as we have with the dead, we could mention other names, many of whom are members of this Society, some of whom are now present, who by their contributions in the cause of science have rendered valuable service to our profession, and elevated it to the position which it now occupies.

While we are all proud of the position to which the medical profession has attained, there are those in ours, as in other professions, who are always bewailing the degenerate condition of the times. These men are pessimists—grumblers. The clerical pessimist is always bemoaning the exceeding sinfulness of sin, growling concerning the exceeding wickedness of the world, and sighing for the good old days. The medical croaker never tires of lamenting of the ignorance of the profession and the great amount of quackery which now exists.

Now I believe the fact to be, that never before in the history of the world was there so little wickedness, and never was it so free from quackery. It is my opinion that, as the people become better educated, all forms of wickedness and error will be diminished, and that in the march of science, sin and quackery will be driven to the wall.

How are these desirable ends to be accomplished?

MEDICAL LEGISLATION.

Many honest men believe that in legislation the remedy lies for all evils.

Have we too many medical colleges? They say, let our State legislatures reduce the number by taking away the charters from the poorer ones.

Have we too many doctors? Let Boards of Medical Examiners be appointed in each State, who will make the standard of medical education so high, the examinations so rigid, that a less number will be admitted.

Are there irregular practitioners in the community? Then let all forms of quackery be made illegal.

In the opinion of these believers in the power of law, nothing could be simpler than thus to elevate the medical profession. But surely these men have not studied the history of past legislation in this country for the benefit of our profession, or they would not so judge. And I boldly assert that nearly every such an attempt has been a failure. The history of the legislation touching the practice of physic and surgery in New York State affords a melancholy illustration of the truth of this statement.

“The statute enacted in 1806 by the Legislature of that State, to incorporate medical societies and to regulate the practice of physic and surgery, was among the first efforts made in this country to give the medical profession an honorable station in the community. In speaking of this law, Dr. Romeyn remarked in his anniversary address, delivered in 1809 at Albany, before the New York State Medical Society, ‘that it marked a new era in the progress of science in this State.’ ‘The Legislature,’ he says, ‘has evinced a confidence in the medical profession that the powers with which it is invested will be exercised with moderation and justice, and that new efforts will be made to promote the knowledge of the healing art and to extend its usefulness.’ The Act of 1806 made a wide distinction between the educated physician and the empiric, by placing the latter under serious disabilities. It recited ‘that any person who should commence practice after the first day of September then next, without being duly licensed (by one of the medical societies) should forever thereafter be disqualified from collecting any debt or debts incurred by such practice; and it further made the unauthorized practice of physic and surgery a misdemeanor, punishable by fine or imprisonment, or both.’

‘In 1830, the Thomsonians raised a hue and cry against these restrictive laws, and the law of 1806 was so modified by the Legislature as to make the unauthorized practice of medicine a penal instead of a criminal offence. Quackery then not only ceased to be a crime, but it was no longer even a penal offence when practised by a class of empirics known as botanical doctors or Thompsonians, provided they prescribed only vegetable remedies indigenous in the United States. But even these concessions did not keep this empirical set from a merited oblivion, and they have become almost extinct. It was further modified from time to time by enactments, repeals and

amendments, all tending to break down the restraints upon medical impostors; and in 1844 all restrictive laws were abrogated, the tide of quackery was let loose, and the quack, whom Swift correctly describes as a vampire, that lives on human blood, was hereafter to have the fullest liberty to puff himself into practice, as a man possessing skill and knowledge, with the express sanction of an act of the New York State Legislature.

“But even this was not enough to illustrate the democracy of medicine. Two other so-called systems of medical practice presented their pretentious claims to legal recognition, and the Legislature, desirous of allowing the largest freedom in everything pertaining to the healing art, incorporated the Homœopathic Medical Society of the State of New York in 1862, and the Eclectic Medical Society in 1865, making them subject ‘to all the liabilities, and entitled to all the powers and privileges of the Medical Society of the State of New York.’ And to-day the enlightened and skilful votary of legitimate medicine occupies in that State the same legal standing as he who sacrifices his common sense and his conscience in the fraudulent practices of the most odious quackery.”

If anything more were needed to show the absurdity of legislation for the benefit of the profession, I might refer to the efforts now being made to repeal the act passed last year by the Legislature of the State of New York. This act provided that all persons intending to pursue the study of medicine must pass a preliminary examination in arithmetic, grammar, geography, orthography, American history, English composition, and the elements of natural philosophy.

Surely this was not too much to require. The act went into effect only last October, and already an effort is being made to repeal it, which is likely to be successful, the repealing act having passed the Senate.

The history of medical legislation in Pennsylvania and other States affords equal evidence of the futility of attempting to elevate our profession by the constraint of laws.

The efforts put forth in this direction have not only signally failed, but have operated prejudicially, and the sooner we rid ourselves of the idea of legislative protection, the better for ourselves and the community.

The recent action of some of our State legislatures in regard to the endorsement of the diplomas of graduates of colleges outside of

their respective States, and the action taken by other States in the appointment of State Boards of Medical Examiners are too recent to judge of their ultimate effect.

But this we do know : they have already caused much bitterness of feeling between the medical colleges and members of the profession of the different States. And it is to be feared that retaliatory laws and measures will be adopted, which will not add grace or dignity to our profession.

It is my opinion that these laws, like the many obsolete laws of the kind which have preceded them, will, in a few years, be a dead letter on the statute-books of the States which have passed them.

THE POWER OF RESOLUTION AT THE MEETINGS OF MEDICAL SOCIETIES.

While there are many who believe in the efficacy of law for the elevation of "the profession," there are others who believe that, in the passage of resolutions at the meetings of our medical societies the proper remedy lies. A glance at the history of our medical societies will show the absurdity of this belief.

That you may see that I am not alone, listen to what is said in a recent editorial in *The Journal of the American Medical Association*. The editor says :

"The evils of an over-crowded profession and their chief causes are admitted by all who have given attention to the subject ; but concerning the appropriate and practicable remedies there is much greater diversity of opinion. Some who appear to believe in the absolute paternity of governments would have either the National or State legislative bodies liberally endow, and at the same time arbitrarily limit the number of the medical colleges. These evidently overlook the fact that all legislative bodies in this country are composed of individuals who depend upon the votes of all classes of the people for their official positions, and a majority of whom are just as poorly qualified to create and maintain a just, stable and efficient system of professional schools as are the majority of the voters who elevated them to office, and who at the next election may relegate them to private life and put a disciple of Christian science or of the faith-cure in their places.

"A much larger number appears to have full confidence in the sovereign power of resolutions. These would make us think that

all the evils under consideration only need discussion at the annual meetings of the American Medical Association and the different State Societies, and the adoption by these bodies of resolutions, solemnly declaring that no more medical colleges should be organized, and that existing ones should faithfully exact of every student before admission a thorough general education, a long period of medical college study, and the highest order of medical attainments before graduation, and the work would be done. We confess to having had some such faith in the efficacy of resolutions fifty years since. But, after seeing the American Medical Association devote annually a fair share of its time to hearing able reports, earnest discussions, and the adoption and re-adoption of resolutions covering the whole subject of medical education, for the first twenty years of its existence, without apparently making any material change in either the number or curriculum of the colleges, our faith in mere resolutions began to weaken. It was during the annual meeting of the American Medical Association in 1866, that the Association, wearied with the ever-recurring discussion, referred the subject of medical education to the faculties of the schools, accompanied by an earnest recommendation that they hold a separate convention of delegates from all the medical colleges of this country during the week preceding the next annual meeting of the Association, which was to be held in Cincinnati, May, 1867. The recommendation was accepted, and a majority of the medical colleges then existing, accordingly sent delegates to the College Convention that assembled in the Medical College of Ohio, May 3, 1867. Professor Alfred Stillé, of the University of Pennsylvania, was made President, and Professor G. C. E. Weber, of Cleveland, Secretary. Three days were devoted to a faithful consideration of the important topics before them, resulting in the adoption of a most admirable scheme of medical college education, by unanimous vote. Its chief features were briefly stated by the *Medical Record*, of New York, as follows: 'First, a positive standard of preliminary education; secondly, a longer time in which to acquire a knowledge of the various branches of medical science, and practice; thirdly, a systematic and successive order of studies for the students; and lastly, a certain amount of direct clinical instruction in a public hospital as part of the senior course.'

"The action of the convention was reported to the annual meeting of the Association then in session in the same city, and received

the unanimous approval of that body. After the scheme thus carefully devised and doubly recommended, had been before the faculties of all the medical colleges for two years, another convention was assembled in Washington, May, 1869, which was presided over by the late Professor S. D. Gross, which endorsed fully the action of the convention; *and yet the colleges continued in the old beaten path as though a convention had never been held.*"

We have recalled these early and persistent efforts of the American Medical Association to remind the younger and more enthusiastic members of the profession of the ground already gone over, that they may avoid repetition and be more readily induced to concentrate their efforts in a direction much more likely to reach practical and permanent results. After this experience, let me ask, Is it likely that the recent meeting at Nashville will produce better results?

Having shown, as I think I have, that, judging from our past history, there is little to be gained by legislation or the passing of resolutions for the elevation of the profession, let me ask: What are the measures on which we are to rely? The answer to this is simple. It is this: The same methods which have served to bring the regular medical profession up to the high standard which it now occupies must be continued. *Our County and State and National Associations must be maintained.* It is the duty of everyone to join these associations. In this way, those physicians who have gone through with regular courses of instruction, and have been recognized as belonging to the profession, can be made known, and distinguished from the host of pretenders, impostors, and empirics who assume the title and make pretensions to the character of physicians. The register of the County Medical Society should contain, as was originally designed by the law of this State, the name of every regular practitioner in good standing in the county. The act to regulate county medical societies gives "full power and authority to enforce discipline among its members, and obedience to its rules and regulations, with power to expel or otherwise discipline as they may deem most advisable for the best interests of said society." This law enables the county society to expel or exclude from membership such as have by their moral delinquencies forfeited their privileges and standing, and lost the confidence and respect of the profession, as well as those who have been guilty of notorious irregularities in practice. So that membership in a

county medical society offers, or should offer, to the public the surest guide in the selection of their medical advisers.

The thorough organization of the medical profession, and its representation in county, state, and national associations, while it will build up a medical public opinion that the profession will feel itself bound to look to and be governed by, will also give a direction to the general public opinion that will do more to discountenance ridiculous doctrines, to repress empiricism and to destroy quackery, than could be effected by the enactment of the most stringent laws, or the passage of the strongest resolutions.

It is important that we keep our skirts clear of everything pertaining to irregular medical practices of whatever kind or description. We should not only avoid all complicity with them, but even the suspicion of a quasi-recognition of them.

INDIVIDUAL EFFORT AND RESPONSIBILITY.

But, while organization can do something for the elevation of our profession, it is, after all, chiefly to *the individual efforts of its members that we must look for its continued growth*. It is necessary that the private practitioner should take his share of responsibility. It is so much the custom of the individual practitioner to think it the duty of the medical schools to supply the community with an intelligent body of practitioners that I fear they forget their own responsibilities in this regard. They do not see the beam which is in their own eye, but are conscious of the mote in their brother's eye.

There is a joint responsibility in this case. The first barrier against the introduction of ignorance into the profession should be at the door of the private office. There should be a faithful sentinel here who would not suffer anyone to pass the threshold who is not fitted by a proper preliminary education to enter upon the study of a liberal profession.

The beginning of the student's career is the most important of his pupilage; and, indeed, there are many who should not be permitted to begin at all; and right here, at the outset is the place to stop those who have not the requisite capacity. The greatest defect in our system of medical education is in the careless manner in which we discharge our duties to our office pupils. Office instruction is often a mere sham, and the preceptor is the one who is most often at fault for encouraging and aiding those who have no ability.

It is thus that many men who might make good tailors, carpenters, or shoemakers, are encouraged to enter the medical profession, for the study of which they are totally unfit. Thus the community is robbed of useful mechanics, our profession is disgraced, and the lives of those who have been thus misdirected are made wretched. Notwithstanding these defects there is a glorious future before us.

Herbert Spencer says: "From biological truths it is to be inferred that the eventual mixture of the allied varieties of the Aryan race forming the population of the United States, will produce a more powerful type of man than has hitherto existed, and a type of man more plastic, more adaptable, more capable of undergoing the modifications of complete social life. The Americans may reasonably look forward to a time when they will have produced a civilization grander than the world has known."

What the profession now is, is owing to this mixture of blood and to the labors of the great and good men of past generations. What it is to be, will depend largely upon the wisdom of the present generation. It will greatly depend upon the training of the young men who are to take the places of their fathers.

There will be time enough to provide for the years which are to come when this country will contain, as it is destined to, such a race of men as the sun has never yet shone upon, for right here will be established an empire grander and nobler than was ever conceived of in the loftiest imaginations of the poet or the wildest dreams of the patriot. The coming generations of men may be trusted to take care of themselves.

Let us see to it, that we act well our part in our generation. Gentlemen, this is a grand age in which we live, and this is a glorious country in which we dwell.

Pay no attention to the pessimists and grumblers. The profession of medicine in this country is keeping pace (and it is a rapid pace, too) with the general advancement of civilization. The system of medical education which we are pursuing, is meeting the wants of the people.

Without the help of the legislatures it is growing, and it will continue to grow.

It must be apparent to any intelligent, unprejudiced observer, that the last fifteen years has witnessed a marked improvement in medical education. The colleges nearly all now require a three years course of study. In no other country in the world is the

profession of medicine as widely respected, and as intrinsically respectable, as in these United States. Here only is the physician esteemed the equal of men who occupy the highest social rank, and here only is he the leader in all associations for the promotion of learning, and in every humane and benevolent society. The humblest physician may, by a zealous application of his time and talents to his profession, and by an upright and dignified course of conduct, inspire those out of the profession with respect for his character and opinions, and rise in the confidence and good opinion of the intelligent, the judicious, and the wise.

Gentlemen, the temple which our profession has been erecting has been in the process of building since the creation of the world, but it is not yet complete. Many noble men all the way down the centuries have been adding beauty and strength to the structure.

And each individual practitioner, no matter how humble, should contribute something to the work.

A story is told of a humble village blacksmith, who, for many years, was engaged in the construction of a cable, which was to be attached to the sheet-anchor of a great ship. Day after day, month after month, and year after year, did those who passed the blacksmith shop hear the rattling of the chain and the sound of the hammer upon the anvil, as blow after blow was struck, welding together the links of the great chain. It sometimes seemed to this humble man that he was engaged in a work for which he would never receive any reward, but he still continued to do honest work and to strike honest blows. It is said that this man never lived to see the cable placed upon the ship, and no one thanked him for the labor of a lifetime. It was years after he had been laid away in his grave that his praise was sung. A noble ship was pursuing her peaceful voyage across the Atlantic, when suddenly, as she neared the coast of Ireland she was struck by a squall and driven upon a lee shore. The hurricane was up, the tempest swept the ocean, and crash was the next sound that greeted the ear. The masts had fallen, the rudder was carried away, and the great vessel with its living freight was drifting toward the rocks. An anchor was thrown out, one of the links of the chain gave way, and the great ship still drifted toward the breakers. Another anchor was thrown overboard with a like result. It was then that the order was given to clear the decks and to lower the great sheet-anchor. It was to this that the cable

forged by the honest blacksmith was attached, and when the strain came upon the chain, every link of which represented honest work, it was strong enough to resist the tension. The ship was held fast, its progress toward destruction arrested ; ship, passengers, and crew were saved, and all because one honest man, now dead and in his grave, had done honest, faithful work. And the wind whistling through the shrouds of that ship, the rush of the seething waters parted by the great chain, the hurrahs from a thousand throats, sounded for the first time the praise and requiem of Henry Kramer, the honest blacksmith. And just so it is with many a faithful physician—his work is not appreciated until after he is gone.

It is not necessary that each member of the profession should be a teacher, or an author of a medical book, in order to be useful ; but the most humble practitioner in the most remote corner of the State can quietly do honest work. He can make original observations, and report his cases to the journals for the benefit of all.

Let each one of us, in our generation, so far as we are able, lend a helping hand.

In the language of another : “ There need be but one architect in the erection of the building, but the skill even of that architect would be of no avail, did not the carpenter, the stonecutter, the mason, the hod-carrier, and the laborer, each perform his appropriate work ; and the individual work of each individual class is absolutely necessary in the erection of the building. Far back in the past, surrounded by that enchantment which distance adds to the view, I see the shadowy outline of the beautiful Temple of the Holy City. The trenches are dug ; the foundations are laid ; the superstructure is raised ; the beautiful and vast proportions arise before our view ; and yet silence is all around, for we are told that ‘ the house, when it was in building, was built of stone, made ready before it was brought thither, so that there was neither hammer nor axe, nor any tool of iron heard in the house while it was in building.’ But listen : in the distance you hear the chisel of the stonecutter as he transfers the designs of the architect and embodies it in the block of marble, and again listen, and from the far mountains is heard the sound of the ax, which, by its repeated blows, levels to the ground the proud cedars of Lebanon. And now the house is erected, the temple is completed, and who are the builders ? The architect gazes with admiration upon the production of his own genius. The stonecutter looks with wonder upon

the form of beauty which he has taken from the unsightly block, the workmen in brass and the workmen in gold are proud of their workmanship ; and yet the work of any, or of all of these, is no more useful, no more essential, than the work of the lonely wood-cutter upon the far-off hills of Lebanon."

HOW THE PHYSICIANS OF JOHNSTOWN WERE RELIEVED AFTER THE FLOOD.

BY GEORGE W. WAGONER, M.D.,
OF JOHNSTOWN.

THE delegates from the Cambria County Medical Society come to this meeting charged with the duty of testifying to the noble charity of the physicians of Pennsylvania whose representatives are here assembled. To them the majority of the members of our Society owe a debt which can only be repaid with gratitude.

As residents of Johnstown we passed through the unparalleled horrors of May 31, 1889. The tragedy enacted in the Conemaugh Valley on that day is recalled with a shudder by all men, but to us it is an ever-present grief. Although it is painful to think of the dreadful scenes of that mournful day, yet we cannot avoid it. Their agonizing memory is still with us. It throws a shadow over all the actions of our people. The burden of horror is so great and so firmly fixed that we cannot escape it. There are hundreds of people in our own city who seek to drown the memory of their sorrows by constant toil and study, but in their dreams the dreadful picture flashes before them. The wild alarm, the frantic effort to escape, the sweep of mighty waters, the crash of falling buildings and the last shriek of dying souls. Around the valley they are swept by the resistless currents. Into the fiery mouth of Hell at the Stone Bridge they float, then out again over the sea covered with struggling victims, as if to make sport for the Angel of Death. In a chill fear they awake only to find it a dream, but with all the agony of the dread reality accompanying it. The experience is maddening, and with some it recurs night after night until the sorely harassed sufferers are hovering on the border-line of insanity.

The first anniversary of our calamity has just passed, and as we look back over the sorrowful events of the year, we now see that the loving actions of unknown friends did gild our tragedy with rays of God's bright sunshine. We know the faces of all people turned white with horror as the story of our destruction flashed over the world. The sympathizing hearts of our Christian fellow-men grew sick with sorrow at the details which were spread before them from day to day. The first determined impulse of all true men and women was to help us, to shower us with blessings in our extremity, to comfort us in distress. There was no need to appeal for aid, it poured in upon us from all quarters of the globe. Had the compassion and pity of our fellow-men not been aroused by our miserable condition, the history of Johnstown would have closed in the darkest tragedy of modern times. But thanks to the wonderful beneficence of which we were the recipients, we have renewed our strength and again press forward into the future with confident courage.

In all the wealth of charity which was lavished upon our despairing people, there was none so free, so prompt, so kindly tendered as that from the physicians of Pennsylvania to their brethren in the Conemaugh Valley.

It came unsolicited, and was tendered with the respect and heartfelt sympathy of the generous donors. When the first Philadelphia donation of money and instruments was brought to us by Professor Mills and Professor Mays just one year ago to-day, they found us dazed by the stupendous ruin that overwhelmed us. We were struggling feebly in our dark valley of death, and the future was without hope. We were wandering about in a chaos of filth, the most miserable of mankind. They came to us with material aid which was thrice valuable because it was the first that relieved our personal wants. They spoke of the profound sympathy which our brethren felt for us, and encouraged us with the assurance that the profession would relieve our needs and assist us in again taking up the battle of life. They were messengers of peace and comfort from our brethren in Philadelphia, and they redeemed their promises in such a manner as to make us the thankful debtors of that noble army of physicians. Following the contribution from Philadelphia came the generous offerings of the Allegheny

County Society and of this organization. You found it impracticable to continue your session in this city last year, because of the woful disaster which laid waste such a large section of the State. But you did not adjourn until you had appropriated a splendid sum of money for the relief of the medical men of Johnstown. In the unsettled condition of business it was impossible to get money into the Conemaugh Valley through the ordinary channels, but without a moment's delay messengers were dispatched to us with the contributions of our medical brethren. It must not be supposed however, that the medical men of the State confined their efforts to the relief of their professional brethren. On the contrary their first thought was of the condition of the sick and injured. From all sections of the State the medical volunteers came and gladly endured the hardships of the first few weeks in their desire to render aid. It was a remarkable fact, however, that there were comparatively few persons injured in the disaster, but the dead were numbered by thousands.

The first surgeons with their supplies came from Pittsburg. They brought with them an abundance of appliances and remedies for surgical emergencies, but a very short experience impressed them with the sad fact that undertakers and coffins were in greater demand.

I shall never forget the first few days following the disaster. The great majority of my neighbors on the South Side escaped over the débris to the higher ground, and hundreds had drifted there from other portions of the town. To attend to this multitude there were four local physicians who had barely escaped with their lives. We were cut off from all other sections of the city except by a circuitous route, and were absolutely without drugs of any kind. However, under the direction of Dr. Wakefield, the President of our Society, a so-called dispensary, with nothing to dispense but advice, was immediately opened in a private house on South Street, and we commenced ministering to the wants of our neighbors in a truly primitive manner. This dispensary was the first one established and the last one abandoned. The report came to us that supplies had arrived from Pittsburg and were somewhere on the railway below Morrellville. I started on horseback over the country to reach this blessed relief and secure a portion for our needs.

I do not know what day it was, for time had lost its significance in the bitter anguish of those hours. When I reached the outskirts of the wrecked city, the train had just arrived from Pittsburg, freighted with its gifts of mercy and pity. The streets of the suburb were filled with an excited crowd of people hurrying to and fro; squads of men were carrying in the dead, others were preparing coffins for them. An oppressive, almost death-like silence enshrouded the people. In the awful presence of Death every voice was hushed to a whisper. Through the crowd could be seen the frenzied and broken-hearted survivors peering into the faces of the dead as they were carried by, hoping, yet fearing to recognize in each body a missing loved one.

I, too, had my dead to find. As I threaded my way through that crowd with faltering steps and sinking heart, I came upon a sight that burned itself into my brain and quite unmanned me. There in a yard, upon a board, lay the pure body of my sister. The peaceful smile upon her lips showed that Death had been merciful to her, and struck her down instantly. But where were her sisters? Where were our father and mother? Oh, God! the bodies of eight other victims dearer to me than life, still lay buried in the filth and slime from Lake Conemaugh. If this experience had been unusual it might excite peculiar sympathy, but it was not. It was swallowed up in the vast total of sorrow into which we were plunged by the fatal blunders and monstrous selfishness of man. We are but human, and who can wonder, when fretted by the memories of our wrongs, we cry out against the cruel fate, the thrice cruel destiny, that swept from earth the helpless victims of men's pleasures?

In this extremity of grief I first met heroic Dr. Oldshue and his associates on the relief train. Dr. Oldshue has since given up his life which might have been prolonged but for the sacrifices he made in speeding to our relief. How gentle and kind he was! How he cheered us by his brave spirit and with words of courage and hope! While still suffering physical torture, he forgot his own agony in soothing the broken spirits of his fellows. Peace to his ashes! May his memory be ever fresh among those in whose service he shortened his life.

These early days were days for action; for labor without

rest, in which the effects of concentrated energy, skill, and knowledge should be made manifest in ministering to the wants of the needy. They were days in which no man dared shirk his duty to the living while mourning for the dead. I say to you with pride that no member of the Cambria County Medical Society deserted his post of duty, however complete his ruin, or great his bereavement.

In a very short time the medical supplies were concentrated in a hall on Bedford Street, which had already been transformed into a hospital. The Bedford Street Hospital became one of the medical centres of the district. From it medical supplies were sent out, the volunteers were assigned to duty in different quarters, and in it were gathered such of the sick and injured who could not be cared for in other places.

The amount of work done at and from this hospital in the early days after the flood was enormous. Its management was excellent and thoroughly satisfactory to the community. Those medical men who worked under this authority have just cause to remember their conduct and experience with pride.

Another medical centre was the private hospital of the Cambria Iron Company, on the hill just above the railway station. This hospital was at once thrown open to all needing medical or surgical aid. Here our medical brethren from Altoona established themselves, and worked like heroes to meet the emergencies of the hour. Professor Forbes and his corps of physicians arrived from Philadelphia a few days after the flood, being delayed on the road by the ruin which marked the path of the storm. After eight or ten days they relieved the Altoona physicians at Cambria Hospital, and remained on duty there as long as their services were required. This simple statement can convey no idea of the amount and character of the work which all of these physicians performed. Their work was all done on foot and extended for miles over a hilly district, yet day after day, night after night, these men continued their labor of love. It is such actions as these, prompted by the highest and most unselfish motives, which ennoble the profession of medicine and raise it to the supreme rank of human occupations.

I might recount many examples of noble devotion and unselfish actions that were constantly occurring during the weary

days of our resurrection from the filth, and the heroes of the most useful ones would be the medical volunteers. They had no part in the clamor and holiday show of official life; their duty was to seek out the sufferer and bring to him the comfort and saving power of medical knowledge. While the noonday heroes spread their plumes in our highways, the true heroes were out in the by-ways and alleys on their missions of mercy.

Among the organizations which can never be forgotten by our people is the Philadelphia Branch of the Red Cross Society. Upon the authority, and under the personal supervision of its President, Professor Pancoast, this society did special and extraordinary work in the line of medical relief, aside from its general relief work. At an early day they established and maintained a thoroughly equipped hospital for the treatment of medical, surgical, and contagious cases. For months it was under the management of competent surgeons and physicians from Philadelphia, and then, to crown the noble work and make it a permanent power for good in our community, Professor Pancoast had the property and supplies of the hospital turned over to our Medical Society. Through his great influence we also secured from the Mayor's relief committee of Philadelphia an appropriation of \$10,000 for the support of the hospital, and it is to-day continuing the work which he inaugurated. Not only this, but acting upon his earnest advice, a hospital association was formed in the Conemaugh Valley, and before another year passes by, our city will have a modern hospital building erected by the Flood Relief Commission as a memorial of the great disaster.

Our Society has endeavored to perpetuate these services by the preparation of a memorial to the medical volunteers, in which is set forth our profound gratitude for the services they rendered our people. We have tried to furnish each volunteer with a copy of this memorial, but as it was impossible to keep a record of all who served us, we fear some who are justly entitled to remembrance have not received them. We shall deem it a pleasant duty to complete our list by the addition of any names that have been omitted. We have already distributed over one hundred copies of the memorial, and are anxious to reach every medical man who gave his time and talent in our service.

We are here also to bear testimony of the worth, the ability, and the manly character of our fellow-members who died in the flood. Dr. H. W. Marbourg, Dr. J. C. Wilson, and Dr. G. C. Brinkey were dashed to death on that blackest of Black Fridays, while in the enjoyment of peace and prosperity, and with intellects unimpaired by the slightest disease. They, like all the rest of us, felt no alarm on that fatal day, but viewed the high waters with calm serenity, only to be aroused in the very moment and act of death. Who can imagine the soul-piercing horror of such an awakening? Strong, vigorous, hopeful; in an instant the avalanche of waters is upon them; one agonizing moment in which to struggle and then to be relentlessly thrust into the presence of their God! But with whatever feelings of awe we contemplate such a fate, our personal knowledge of these men assures us that they could meet death with an unflinching front, and expect a blissful future in the life beyond the grave.

Drs. Marbourg and Wilson were men who had endeared themselves to hundreds by the zealous pursuit of their profession for many years. They were prompt, reliable, and conscientious in the performance of their duties. No one appealed in vain to them for aid. They indeed

“Lived for others’ needs
In duty’s bondage.”

Dr. Brinkey was just fairly started in his chosen profession, but his force of character and natural abilities assured brilliant success in the future. He was respected and honored for his noble and generous character, and his untimely death is deeply regretted.

These three men were well fitted for the medical profession. Their health and mental vigor made them earnest and energetic in the discharge of its exacting duties. They were honorable men whose dignity of character was unfeigned. They loved the human race and took manly pleasure in life. Their courage and ability entitled them to the respect of their associates and the public. They were just, fair, and Christian gentlemen, whose daily acts moulded consciences which would sustain their souls in the last bitter struggle. When the supreme moment came, they each could enter the valley of the shadow

of death without one pang of remorse, without fear of the future.

It is our duty to bear testimony to the integrity and worth of our associates. From close personal and professional intercourse we have made up our judgment of these men, and can speak to their honor in no uncertain sound.

Of those physicians outside our organization, three met death in the flood. While our medical faith differed from that of these men, yet they were fair rivals whose lives reflected honor on our noble profession. They held high rank in their own organizations, and were beloved by their clients. Dr. L. T. Beam, Dr. W. C. Beam, and Dr. J. K. Lee, will long be held in loving remembrance in Johnstown.

Thirty-five of the physicians of the Conemaugh Valley suffered losses aggregating, at a very low estimate, \$175,000. This to many is not a very large sum of money, yet in it are included the savings of many years of hard labor, and you who know how slowly physicians accumulate a competency, can understand how many more years of hard labor will be required to recover this loss.

Six of the thirty-five physicians perished in the flood. Of the twenty-nine remaining who suffered loss, two outside our Society declined the proffered aid. Of those who received aid, seventeen were members of the Cambria County Medical Society.

I have the honor to present to you a statement of the amount of money contributed for our relief. By direction of our Society the money was placed in the hands of Dr. A. N. Wakefield, the President, and Dr. F. Schill, the Treasurer, for distribution. They received and distributed the entire fund except that portion contributed by the Allegheny County Society, which was distributed by Drs. Foster, Murdoch, and Buchanan, acting as a committee of the society.

Amounts received by Dr. A. N. Wakefield.

From Philadelphia County Medical Society	.	\$4,812	25
From Montgomery County Medical Society	.	532	00
Balance from Dr. Schill's fund	.	231	24
From Allegheny County Medical Society	.	1,425	00
		<hr/>	\$7,000 49

Brought forward \$7,000 49

Received by Dr. F. Schill.

From State Medical Society	\$1,000 00
“ Washington County Medical Society	100 00
“ Clearfield “ “	17 24
“ Warren “ “	50 00
“ Susquehanna “ “	25 00
“ Chester “ “	25 00
“ Centre “ “	76 00
“ Montour “ “	38 00
“ Dr. Graham, Denver, Col.	20 00
“ a County Society per Dr. W. B. Lowman; name of Society lost	67 50
	<hr/> \$1,418 74
Total amount received	\$8,419 23

In addition to the money received from the Philadelphia Society, we received instruments to the value of over seven hundred dollars.

Dr. Wakefield disbursed to twenty-seven physicians . .	\$6,967 60
Dr. Schill “ “ “	1,390 74

Making a total of \$8,358 34

A balance of \$60.89 has been turned into the treasury of our Society.

And now, gentlemen, we have only thanks to tender the physicians of Pennsylvania in payment for their generous aid and deeds of charity, but we can assure you they are the sincere outpourings of those who learned the value of true friendship and kindly actions in the long and bitter hours of anguish and distress.

We pray God that no community may ever be scourged as we were scourged; but let the world know, when the cry of suffering humanity is heard, there will be none so ready and willing to respond to the appeal as the physicians of Pennsylvania.

ADDRESS IN MEDICINE.

BY J. C. WILSON, M.D.,
OF PHILADELPHIA.

MR. PRESIDENT: I undertake the honorable duty conferred upon me, sir, by your distinguished predecessor in office, with commingled feelings of sadness and hopefulness. The sadness is begotten of that sorrow which we all feel for the calamities that befall our fellow-men as individuals; the hopefulness springs from an abiding belief in the onward progress of mankind as the result of social organization—a progress in which the medical profession has to-day a larger and more responsible part than ever before. Both sentiments are deeply stirred by the circumstances of this meeting. We remember that the session is an adjourned one, and our thoughts go back to the appalling calamity by which we were prevented from assembling here a year ago. To be present with you, some of us have, within a few hours, traversed a region made forever memorable by sudden overwhelming destruction and death. The mournful anniversary is scarcely past. A thousand hearts, nay, ten thousand are oppressed with the unspeakable sorrow of the events of that fatal day. Within the range of my voice are many whose spirits bear the wounds of that horrible disaster—wounds that will not heal. It is proper that we should mourn. Men of our own profession, men who would have been with us to-day, were swept away, powerless to aid their fellows or themselves in that relentless flood. The few who escaped with their lives, true to the instincts of an enlightened humanity and of their profession, bruised and battered as they were, spent the remnant of their strength in heroic efforts to save and succour their more hapless neighbors. And who first to the rescue? From west and east, without loss of time, over obstacles and through hardships of every kind, with food and

clothing, with medicines and surgical appliances, with sympathy and cheer, organizing as they came, doing themselves and teaching others what was to be done and how to do it, came those whose vocation in life is to rescue. I look upon their faces now and their bravery and fortitude, their skill and gentleness, their manliness and honor, fire me with enthusiasm. Hero-doctors! we are proud to be of your craft.

Since its organization, in 1848, only once before did this Society fail to assemble at its appointed annual meeting. That was in 1861. The meeting then also was to have been held in Pittsburg. That likewise was prevented by an unspeakable calamity. Men realized that the country was in the midst of civil war; that the integrity of the Union was not only threatened—that had long been the case—but was actually assailed, and already in the greatest danger.

No time then for learned discussion or scientific debate, much less for friendly meeting and the genial interchange of social courtesies. Cherished institutions, property, life itself, were in jeopardy. Men were hurrying to the front for engagement in actual conflict; those at home were busy with urgent preparation for war. Physicians were needed in hospitals, surgeons on the field of battle. The men who then composed this body, a few of whom are still with us, long peaceful again in piping times of peace, were in no mood to sit in grave dispute while their fellows were in action. So the session of 1861 did not take place. Later, things were worse; but the following year the remnant of the Society issued a call for the regular annual meeting, which was held in Philadelphia. I allude to these facts not only as being matters of interest in the history of the Society, but also as illustrating a point which serves my purpose.

The two stupendous calamities which prevented these two meetings of our State Society, and made this the fortieth session instead of the forty-second as it should have been, were calamities of men's own making. Each of them had been long foreseen; thoughtful men had lived in momentary apprehension of their occurrence. Plans by which they could have been averted were repeatedly and earnestly advanced only to be frustrated by the tenacity of vested rights on the one hand, and a temporizing policy of expediency on the other. The

one was political, and while I have no disposition to transcend the limits of my theme, I will be pardoned for saying, for the sake of argument, that had the wrongfulness of human slavery been generally recognized in the early days of the Republic, and the subject radically dealt with, the great Civil War would not have occurred.

The other was a calamity of physics, of bad engineering, which would have been averted by doing the right thing when the right thing to do was first known.

Let me say here, that while the right thing often seems to cause some hardship, and expediency has a specious appearance of pleasing everybody, as a matter of fact, everybody is the loser by expediency, and all gain by doing right for the right's sake. Of this more later.

We are not assembled here to-day simply as individuals in search of the pleasures of social intercourse; though in these reunions the renewal of old acquaintances and the making of new friendships play a large and useful rôle. Nor are we here merely as medical men who seek in friendly interchange of thought and experience to increase our knowledge and enrich our skill as individuals; though by our good fortune these meetings enable us to do both. We are here as members of a great profession, the organization of which is rendered possible by our organization, and by the relation of this body to the minor societies whose delegates we are, on the one hand, and on the other to the American Medical Association. The stated meetings of these various bodies have an importance not apparent to those who overlook the fact that they are the functions by which the profession as an organized body manifests its life. Without them, disintegration. With them, interdependent life, ceaseless activity, a purposeful and powerful profession, noble in itself, and capable of the highest usefulness to the society in which it exists and of which it forms an honorable part.

Forty-two years ago a little group of earnest men organized the Medical Society of the State of Pennsylvania. To-day its members and delegates comprise the greater part of the profession of the State. We are a harmonious body. If there are differences, they relate to details rather than to principles. We are in close accord among ourselves that our influence

must be exerted in the direction of broader knowledge and higher skill among the members of our profession and in the direction of the highest dignity, the greatest good, and that consistency which commands respect, on the part of the profession itself.

To realize these aims, we must see to it that the profession is protected. It requires protection both within itself and in the approaches to it.

I venture to depart from the customary form of the Address in Medicine to bespeak your attention for a few minutes to this subject.

Protection in medicine is a necessity that needs no argument. It is necessary to the very existence of the profession itself. That this is well understood is shown by the stringent safeguards by which medicine is surrounded in older and more disciplined countries than ours, where certain social problems now engaging our attention have been thoroughly worked out; and by the efforts made in this direction by the profession in this country from the earliest days. It is necessary in a far higher degree to the public, who are the real sufferers from unrestricted licence and free trade in matters that touch the general and personal health. But the public is apathetic in this matter. The cares of this world, the pressure of affairs, the mysticism of quackery, the allurements of charlatanism blind the attention of the people to evils that largely affect their lives and happiness—yet more, if it were but known, their pockets.

The very fact that a diploma is esteemed a necessity to the practitioner shows the universal demand for some sort of evidence that the doctor knows something. But there are diplomas and diplomas, just as there are colleges and colleges.

The demand creates the supply. The possession of a sheepskin no more certifies to learning than a new suit of clothes indicates riches. Both can be had for a small sum of money, and each often represents the total assets of the owner. The protection afforded by a diploma is in fact no protection at all, either to the profession or to the public. At this point we encounter the power of vested rights. Many of the colleges, insist that the degree which they, by virtue of their charters, confer, and the diploma which attests the fact, have always

conveyed, and must still continue to convey, the licence to practise; and the poorer the college and the larger the proportion of its graduates to matriculates, the louder the clamor and the fiercer the opposition to any new measures of protection.

The next step in the direction of protection is registration. By this means itineracy is hampered. The possession of a diploma or the experience that goes with a number of years' practice without one, are requisites to practise under the registry laws; but the vital question of proficiency, even of a minimum technical knowledge is not touched. The registrars in most cases have neither the knowledge nor the power to discriminate as between the colleges that have granted diplomas; they are only required to know that the colleges have been legally incorporated. Where, as in the State of Illinois, the graduates of *colleges not in good standing* are not granted a licence without examination, the schedule by which the standing of different institutions is rated is absurdly low. (See the report of the Illinois State Board of Health, 1889.)

There remain two other plans of protection in medicine, both of which are now undergoing trial on this continent with encouraging results. These are: first, the appointment by the State, or by the proper authority within the State, of a board of examiners to examine, irrespective of diplomas, the candidates for licence to practise; and second, the organization of the entire profession in each State into an electorate which shall send representatives to a central body having full control of all questions relating to medical education, examination, registration, and licence.

Under the first of these plans the entire question of registration is placed in the hands of a board of examiners appointed by the Governor or by the State Society. It is obvious that such a board, to be effective, must constitute the only means by which an applicant can obtain a licence to practise. There are now in the United States twelve licensing and examining bodies that do not give instruction. The practical working of this plan, as shown in North Carolina, Virginia, and Minnesota, presents few difficulties, and it constitutes an effective barrier against the inroads of poorly qualified holders of diplomas. The duties of such boards are clearly defined and their operation is simple and effective. There is no doubt that

in the course of a short time this plan will be widely adopted. As Dr. Rauch, Secretary of the State Board of Health of Illinois, has shown in his last report, the operation of this plan has already been productive of beneficial results not only upon the profession itself, but also in the general tendency among the colleges in the direction of raising the standard and lengthening the term of study. The obvious defects of this plan are, first, that its powers are too limited, there being no control of preliminary and special education, and second, that the appointment of boards is liable to non-professional political influence. The records of the State Medical Examining Board of Virginia for four years ending October, 1888, illustrate the efficiency of this plan as compared with former methods. Of 240 candidates presenting themselves for examination and holding diplomas probably of colleges in good standing, 54, or 22 per cent., were rejected. Those who advocate this plan know that Dr. Rauch, to whom all praise is due for his earnest and efficient labors in the cause of an improved medical education, has also urged the establishment of a uniform series of regulations for examining boards in all the States throughout the country. Notwithstanding the rapid increase of population in some of the more newly settled States, and the rapid tendency to uniformity of social organization, the day must be far distant when uniform requirements for the practice of medicine throughout the land will be either practicable or enduring. The boundaries of the States define territories sufficiently large for uniform regulations upon this subject. Each State should define requirements in accordance with the necessities of its population. Practitioners desiring to establish themselves under the jurisdiction of a new board must prepare themselves to meet the requirements of the new board, and pass its examination.

The second plan is less generally known, although it has been tried for many years in the province of Ontario, Canada. It was fully described by Osler in an address entitled "Licence to Practise," delivered to the Medico-Chirurgical Faculty of Maryland, in the spring of last year. My account of this plan is drawn largely from Prof. Osler's address.

It appears to me so practical, so closely in accord with the requirements of the profession, and so completely to meet in

every particular the difficulties of protection in medicine, that I am surprised that it has attracted so little attention in the general discussion of the subject.

To carry into effect such a plan would demand the enactment of laws regulating all its requirements and a general act of incorporation of the profession as a body in each State. It is desirable not only in theory but in practice that the State board should be composed of representatives from electoral districts rather than appointed by the Governor or the societies. Such a board should have full jurisdiction of all matters appertaining to medical education. The counties or other territorial districts which might be made should send a limited number of representatives to the board depending upon the population of each district. The electors, and as a matter of fact, the representatives, would be constituted by all registered practitioners irrespective of schools. The Governor of the State would issue the first warrant for the election, which would subsequently be the prerogative of the executive of the board. The number of representatives should be determined by the medical constituency in each electorate as previously arranged. Representatives should be elected for a term of four or five years, and members should be eligible for reelection. Universities and schools should be fully represented on the board. It would be necessary to return members from each of the generally recognized divisions which at present constitute practitioners. There would be active electioneering and a good deal of log-rolling, some political trickery without question, but I agree with Osler in thinking that, on the whole, it would be found that such an election could be conducted with tolerable purity. To such an organization might safely be intrusted the full control of all questions relating to medical education in the State, and within certain limits questions of public health. It would correspond to the synods and conferences of the various religious denominations, with powers accurately defined by legislation, including the right of appeal to court for infliction of certain penalties—such, for example, as the revocation of the licence to practise in flagrant cases. The important ordinary duties of such a board would comprise the regulation of the requirements of matriculates—the course of study in the colleges, the length of time, the final examination of applicants

to practise, and the granting of the licence. The necessary expenses would be met first by the fees to be paid by the candidates for examination, and secondly by a small annual tax levied upon all registered practitioners. Such bodies would in a brief time become permanent establishments in the States, with buildings properly equipped for examinations, and the necessary arrangements for conducting in an orderly and systematic manner the business of the profession, and a permanent resident secretary. Such board would determine the minimum standard of education necessary to enter upon the study of medicine, and in so doing would establish a guarantee of uniformity which cannot be expected from the schools. For the preliminary examinations independent teachers would be preferable to professional men, and the examinations should be held in different parts of the State. Such examinations would effectually prevent the entrance of men lacking the early training requisite for professional study.

I refer at this point to the subject of expediency. The hardship of preventing an ambitious but ignorant man from entering upon the study of medicine is apparent rather than real.

There would be, as a matter of course, great diversity of opinion in regard to the selection of the examiners for licence to practise. The difficulties in this direction arise from the want of suitably trained men outside of the teachers in the schools, but they are not insurmountable. By systems of numbers for written examinations, and the presence of two examiners at all oral examinations impartiality would be secured. In the scientific branches it would be almost impossible to find in the general profession examiners having the necessary training; on the other hand, there are abundance of men in every State fully capable of conducting the examinations upon the clinical branches. The difficulties relating to the differences between the various schools of practice, which at present seem to many insurmountable, are rather imaginary than real. A uniform series of examinations in anatomy, physiology, chemistry, pathology, morbid anatomy, practical obstetrics, surgery, and medical jurisprudence, should be open to all applicants. In the subject of therapeutics only should there be different examiners to meet the requirements of the schools. Upon application, it would be necessary for the student to indicate

whether he desired to apply for an examination in therapeutics as a regular, as a homœopath, or as an eclectic, and if successful his name should be placed upon the State register in accordance with his choice.

In regard to the working of this plan in the Province of Ontario, I quote the following statement from the address of Prof. Osler: "It practically hands over to the profession, through its elected representatives, the management of its own affairs so far as they relate to preliminary and professional examinations and certain disciplinary enactments. In spite of the strenuous opposition on the part of many who felt that it was a most degrading thing thus to lop the important privileges hitherto held by the universities which enabled graduates to obtain licence without further examination; in spite of dissensions and dissatisfaction, such as are almost inevitable in connection with a new organization, the board has persisted in its good work, and to-day, after twenty-three years of existence, it has a record of which the entire profession of the Province is most justly proud. On no point was opposition more bitter or more prolonged than on the admission to representation of members of the homœopathic and eclectic bodies. But wise counsels prevailed and representation remained general, as it was; though it is true, I believe, that the eclectic body no longer has practitioners enough in the Province to send a representative.

"The influence which this organization has exerted has been in the highest degree beneficial, and the schools now accept the inevitable with a perfectly good grace. The board possesses a magnificent central building in which to conduct the examinations, with offices for registration, and rooms for a Provincial library. The fees from the examinations, and a small annual tax levied on each registered practitioner, have proved a source of ample income. The same conditions, with modifications, exist in the other British Provinces."

One or the other of these plans, perfected in detail or modified to meet practical requirements, is urgently needed by the profession of this State. To secure the enactment of the requisite laws we must have a united profession. Unanimity means concession. In this matter concession must be only in the direction of the public welfare. I believe the colleges are

ready; I know that many influential members of the faculties of the leading schools are earnest advocates of reform. The material interests of our schools will be substantially furthered by measures which will effectually end the competition of the cheap two-term schools of neighboring States. But higher motives carry greater weight.

Hereafter the diploma will be a less imposing document; it will become a certificate of scholarship, valuable only in proportion to the standing of the school by which it is issued. Licence to practise will be granted only to those who are proficient, without regard to the school in which the technical knowledge and skill have been acquired. The examinations will not be too rigorous. No catch questions will be permitted. Fundamental knowledge only will be required.

There must be, however, no talk of concessions to those who delight in calling themselves eclectics and homœopaths—their representation must be of right. Their rights under the law are the same and equal with our own, and must be at once and fully recognized—but no more. In the wholesome atmosphere of higher knowledge the fetich of names and the shibboleth of dogmas will lose their fascination.

The long work of our Committee on Medical Education is about to bring forth fruit. The times are ripe. Upon us rests the responsibility of throwing the influence of a united and harmonious profession into the final struggle. I fear no great catastrophe—we shall have neither internecine war nor irruptions of Goths and Vandals; but the open gateway to the medical profession is an abiding calamity to a great commonwealth.

ADDRESS IN HYGIENE.

BY THOMAS J. MAYS, M.D.,
OF PHILADELPHIA.

MR. PRESIDENT: In casting a retrospect over the two years which have passed since our last meeting, I am quite certain that you will agree with me when I say that the task of reviewing in a short address all the work which has been done in the name of hygiene during this time would be a prodigious if not a profitless undertaking, and that you will pardon my confessed inability to fulfil the strict letter of the law if I confine my remarks to the consideration of a special department of this branch of medicine, and thus make an effort to compensate in concentration that which I lack in generalization.

The theme to which I shall invite your attention to-day is that of

THE RELATION BETWEEN ARTIFICIAL INOCULATION AND PULMONARY CONSUMPTION.

The study of pulmonary consumption, like that of cholera, yellow fever, leprosy, and many other diseases, has been approached from two directions—(1) from the experimental or laboratory side, and (2) from the clinical side. It must be admitted on every hand that these are legitimate and scientific methods of investigation; and, whatever the nature of their results may be, one thing is perfectly clear, and that is, that being the products of genuine processes, they corroborate each other, and must hence be accepted. Under such circumstances one side cannot be absolutely and entirely right and the other absolutely and entirely wrong, but both must be entirely right, and must be complementary to each other.

What, then, has each method contributed to the study of the disease?

In 1865 Villemin produced tuberculosis in rabbits by inoculating them with tuberculous material. This has since been abundantly confirmed by other observers, and in 1882 Koch gave the study of tuberculosis a fresh impetus by demonstrating that a specific microörganism—the tubercle bacillus—is associated with the tubercular virus. When this organism is injected subcutaneously into the bodies of animals tuberculosis is generated. Tuberculosis may also be induced by feeding tubercle virus to animals, or by compelling them to inhale the same. It must be stated, however, that artificial tuberculosis is most readily induced by the first, and least readily by the last two methods. Rabbits and guinea-pigs are more susceptible to it than cats and dogs, and, on the whole, the disease seems more communicable when the virus is introduced into the abdominal cavity than into the eyeball.

These facts show very conclusively that tuberculosis is transmissible from man to animals through inoculation, and they have naturally given rise to the almost universal belief that pulmonary consumption is a contagious disease. The health authorities of the State of Pennsylvania and of a number of the large cities of this country and of Europe have been moved to adopt measures which have in view the suppression of this disease on the score of its contagiousness.¹ By common consent it must be admitted that this is a serious matter; for if this belief is correct these officers are discharging a most sacred and responsible duty, in which they should receive the encouragement of every loyal citizen. If it is erroneous it is equally clear that these officials not only perpetrate a terrible wrong on those who are afflicted with this disease, but also waste the time and energies of the people by misleading them in regard to the true nature, cause, and prevention of consumption.

¹ The Board of Health of the State of Pennsylvania in a recent circular (No. 26, page 6) says: "Painful as the conviction that he is liable to be a dangerous source of infection to his family and friends, as well as to the public, must be to the sufferer from phthisis, it must be forced upon him. This is the duty of his medical adviser." Further precautions given are that under no circumstances shall his expectoration be allowed to dry before it is destroyed, and that he must scrupulously avoid spitting on his handkerchief, on the floor, or on the ground, and instead must use a small spitting-flask.

Let us see, then, whether clinical medicine is able to throw any light on the truth or falsity of the contagion doctrine. In discussing this side of the question I will start out with the fundamental and self-evident proposition that—if other things are the same—those who are most exposed to a contagious disease are most liable to contract it. This may be very aptly illustrated by some of the accidents due to railway travel. While only a portion of those exposed to railroad accidents are injured or killed, it still remains true that the mortality rate from such casualties is higher among those who travel in cars than among those who do not. This principle holds true in the case of smallpox, measles, etc., and is the *experimentum crucis* in the case of consumption, if, like them, it is a contagious disease. Now, those who hold to the contagion doctrine say that the tubercle bacilli are the elements on which the contagiousness of consumption depends—*i. e.*, they are the carriers of the disease from person to person. It has been demonstrated that these germs abound in localities where the disease exists, and are absent where the disease is not found. Such localities are hospitals for consumption and the homes of those who suffer from the disease. It is inevitable, therefore, that physicians, nurses, and attendants of consumption hospitals, and intimate relatives of consumptive patients are more subject to the disease than those who are but seldom exposed. What are the facts?

Physicians who are constantly exposed to consumption are much less subject to it than are butchers, coopers, locksmiths, etc., who scarcely come in contact with it except by chance. The statistics of the Brompton Hospital for Consumption, in London, show that during a period of thirty-six years not a single clearly authenticated case of consumption arose within its walls among its twenty-nine physicians and assistant physicians, its one hundred and fifty clinical assistants, and its one hundred and one nurses, of which there existed a health record. The statistics of Friedrichshain Hospital, in Berlin, recently gathered by Dr. Fürbinger, show that during a period of sixteen years out of 459 male nurses there were 4 (2 of whom were tuberculous before entering); of 339 female nurses there were 2; of 83 physicians there were 3 (1 of whom entered with the disease) who became consumptive. Of 108 Victoria

sisters, who were engaged as nurses in the same institution from two to five and a half years, only one became consumptive.

These statistics are also strikingly confirmed by those which show the influence of the Consumption Hospital of Görbersdorf, in Germany, on the death-rate from phthisis among the inhabitants of that town. Dr. Brehmer, who had been in charge of that institution for twenty years, says that since the year 1854 more than ten thousand consumptives resided in the hospital, who daily walked the streets of the town and commingled with its inhabitants. The latter were, therefore, continuously respiring an atmosphere more or less laden with tubercle bacilli emanating from the dried expectorations of these consumptive visitors; yet, in spite of these favorable conditions for contagion, the mortality is 50 per cent. less among the Görbersdorf population since than it was before the establishment of the hospital. These figures are especially interesting in view of the assertions frequently made that the healthful influence of mountain resorts is impaired by the infectiousness of the exhalations and expectorations coming from consumptive people who go there for relief.

Then, again, it may also be said that it is not true, as is so often asserted, that the attendants of hospitals, where other diseases than consumption are treated, enjoy a similar immunity from disease. This is well shown, at least so far as typhoid fever is concerned, in the records of the Massachusetts General and the Boston City Hospitals. In the former, from 1882 to 1887, no less than seven, and probably eleven; and in the latter, from 1884 to 1888, twenty-eight cases of typhoid fever occurred among the medical attendants and employés of these institutions.

Similar negative testimony is obtained from the statistics of the contagiousness of consumption between husband and wife. Dr. Schnyder, of Switzerland, gives a record of 844 cases of consumption occurring among married people. In 445 of these the husband only, and in 367 the wife only was consumptive, while in 32 both husband and wife were affected; showing that in 812 instances there was not the least proof of contagion. Is there any reason to believe that the disease originated through contagion in the 32 cases? Dr. Schnyder

says not, for four of these cases came to him fresh from the matrimonial altar affected with the first signs of consumption, and he is of the opinion that in spite of all warnings, young people are frequently married while suffering from the disease. The late Dr. Flint gives the history of 670 cases of consumption which affected husbands and wives, and among these there were only 5 in which there was a suspicion that the disease might have been contracted from one or the other; but it is certain, he says, that the instances in which transmissibility may be suspected can also be accounted for as coincidences in a disease which is so prevalent as consumption. M. Leudet shows, too, that out of 112 widows and widowers, whose consorts died of consumption, only 7 (4 women and 3 men) became phthisical; hence there remained 105 who lived intimately with tuberculous people without contracting the disease.

About seven years ago a committee of the British Medical Association distributed circulars of inquiry among the members of the profession in regard to the liability of contagion between husband and wife or between members of the same family, etc. Ten hundred and seventy-eight answers were received. Of these, 778 were negative, 39 doubtful, and 261 were affirmative.

The large number of affirmative answers which have been received in this investigation are taken as proof of the contagiousness of this disease. This evidently is a mistake, for the aim of the inquiry was not to ascertain the number of absolutely well-demonstrated cases in which contagion was present or absent, for this would obviously have been an impossibility, but it was to collect the individual opinions of a large number of physicians as to whether they believed the disease to have been contagious in certain cases or not; and this resulted in 778 negative and 261 affirmative votes. Are we to assume, therefore, that the 261 opinions are of more weight than the 778 negative ones, and thereby imply that the former only had the fortune or misfortune of meeting cases which originated through contagion, and the latter had not? Is it not more probable that all of them witnessed cases around which hung a cloud of suspicion that they might or might not be contagious, but that 778 did not consider the proof strong enough to outweigh that which, in their minds, was in favor

of other and more powerful influences in the causation of the disease?

Now, in converging the evidence of the two sides of this question there appears to be an irreconcilable contradiction. The experimental testimony points decidedly toward contagion, while the clinical testimony just as decidedly opposes such an opinion. It must be remembered, however, that the first kind of evidence pertains only to experiments on the lower animals, and, in so far as it applies to the human body, rests entirely on a theoretical basis. It establishes the fact, however, that when the tuberculous virus is introduced under the skin tuberculosis follows. On the other hand, clinical evidence utterly fails to show that such inoculation occurs in practical life; nor does it show that those who are most exposed to the bacillus tuberculosis, as it is disseminated through the atmosphere, or through food, are more, or as much, liable to contract the disease as those who are not so exposed.

When the apparent antagonism between these two kinds of testimony is thoroughly sifted it will be found that, so far as the origination of pulmonary consumption is concerned, laboratory experiments are absolutely silent. All that they show is that the disease may be transplanted by a certain method after it has been called into existence by other causes. Clinical medicine does not, perhaps, define the exact mode of the origin of consumption, but it positively asserts that it does not arise by being transmitted from person to person through contagion. The great difficulty in the discussion of this problem has always been a neglect to distinguish between the origin and the transplantation of consumption. These two phenomena are actually treated as if they were one and the same thing, yet the original genesis of a new form of life, whether normal or abnormal, differs as much from the artificial transplantation of the same as sunlight differs from moonlight.

The truth of this is strikingly illustrated in skin-grafting. Particles of skin are planted on denuded surfaces and become thoroughly incorporated with the bodily tissues, yet such an artificial procedure gives us no knowledge of the origin and mode of genesis of the skin that is transposed. In cow-pox vaccination—another example of the same kind—a new form of life is not only transplanted to the body, but the new form

of life has a deep modifying influence on the whole organism; yet neither the operation nor its products give us the remotest idea as to the source of the virus against the action of which it protects the body. Another exemplification of this is found in the vegetable kingdom. It is well known that a graft is capable of communicating the peculiar properties of the fruit, color of leaves, etc., of the tree or plant from which it is taken, to the whole tree or plant on which it is grafted.

Dr. Darwin, after relating a number of cases in which grafting or budding of the variegated jessamine, the oleander, and the ash, infused their peculiar characteristics into the stocks which received them, states¹ that "many authors consider variegation as the result of disease; on this view, which, however, is doubtful, for some variegated plants are perfectly healthy and vigorous, the foregoing may be looked at as the direct result of the inoculation of a disease." Dr. Masters, in an able contribution to the subject,² says: "Cases have been observed where, from the stock *below* the graft, fruits and flowers of the same appearance as those borne on the scion have made their appearance. This has been observed in the case of the pear grafted on the mountain ash, and in other cases." In regard to the transmission of variegated leaf properties through grafting, Dr. Masters states that "a year or two since a beautiful *abutilon*, with leaves mottled with yellow, was introduced into our garden. It was very desirable that this should be propagated as largely and as speedily as possible. The scions of the variegated *abutilons* were grafted on to green-leaved stocks of other *abutilons* by many nurserymen on the continent and in this country, and it was soon found that the grafted plants produced variegated leaves from the stock. That the variegation is really due to the influence of the scion is shown by the fact that if the graft becomes separated from the stock, the leaves subsequently produced from the latter were wholly green, as before the grafting, and even the variegated leaves originally produced lost their mottled character."

Let us, then, for a moment imagine the feelings of the experimental physiologist whose mental vision of the source of

¹ Animals and Plants under Domestication, vol. i. p. 474.

² Grafting: its Consequences and Effects. Popular Science Review, April, 1871, p. 149.

plant-life is limited to a knowledge that grafts have the power of infusing the peculiar color of their leaves, the nature of their fruit, the odor of their flowers, and their very fibre and constitution into the stock upon which they are grafted, on being ushered into a beautiful grove of trees, or into a garden of flowers. Would he not in his ecstasy at once say to himself, it is clearly demonstrated that grafts possess the power of transmitting these properties to the plant-stock, therefore it must follow that all this diversified wealth of vegetable form and beauty is the product of inoculation by grafting? Would not his analysis be as wise and as justifiable as that of the experimental pathologist who announces that because pulmonary consumption may be occasioned by artificial inoculation, nature pursues a similar course in producing the disease? I do not by any means ascribe to myself infallibility of judgment, but I appeal to you, gentlemen, whether the mental processes employed by both the contagionists and the believer in the creative power of vegetable grafting, are not entirely identical in nature and in character?

Take away the inoculation experiments on animals and you destroy the corner-stone on which those who believe in the communication of consumption from man to man repose their belief. I am not unmindful that there are many who deny this, and who claim that their faith rests on certain and well-defined evidence of contagion. But I never yet saw a case of this kind reported which on thorough examination did not turn out to be a case of misplaced confidence, so far as positiveness is concerned. Probability exists sometimes, but this does not constitute positive proof. Nor need any one wonder at this, for it is not a question which is susceptible of decision by an appeal to specific individual instances, either for or against contagion, as has been maintained throughout this paper. But it is, as Dr. Oldendorff has recently expressed it, in a discussion of this same subject before the Verein für Innere Medicin, in Berlin, a question which must be determined by statistics; and statistics, as we have seen, give no uncertain tone in response.

When direct statistical evidence, such as that submitted in this paper, shows that among 1626 married persons, where consumption existed either in the wife or in the husband only, the same

disease occurred in the other partner in only 44 instances, the certainty of non-contagiousness is placed beyond the shadow of a doubt. Here we have the picture of more than 1600 people who were subjected to a much closer intimacy than that which obtains in any other condition of social life, occupying for years the same bed at night and the same room by day, and yet only 44, or 2.73 per cent., of the consorting partners became fellow-sufferers. Truly, if consumption is contagious, it can only be so in a very slight degree. But can the source of these forty-four cases be traced to infection? Hardly, for in a disease which is as general as consumption, it is highly probable that many of them carried within their systems a tendency to the disease, which only awoke out of its slumbering condition and asserted its power when the many varied burdens and demands of family life began to exhaust the vital resources. Again, it may be true, too, that some suffered from an active or a latent form of the disease before they were married. Indeed, Dr. Schnyder, who contributes the largest number of these cases, states distinctly that four of them came to him fresh from the matrimonial altar, victims of the disease in its incipency.

Moreover, the contagiousness of consumption is an old idea, and all the measures of prevention which are receiving serious consideration from those who believe in it at the present time were tested with disastrous results by the inhabitants of Naples more than a hundred years ago. They reasoned as follows: If consumption is contagious, then the separation of the afflicted from the well is the only logical remedy; and for sixty-six years—from 1782 to 1848—they enacted and enforced the most rigorous laws that have ever been introduced for the suppression of any disease. Every physician was fined \$180 for the first neglect to report a case under his observation, and was banished for ten years for the second offence. In every case the ceilings, walls, floors, doors, and windows of the rooms in which consumptives died were torn out and burned, and new ones were substituted. The bedding and furniture shared the same fate, and such dwellings were not inhabitable for one year. In consequence of these stringent laws the family with consumption in its midst was shunned and driven to want, and the patient was regarded as a public pest. Houses in which

consumptives died came into disrepute, and many of their owners were turned into beggars. The sick were neglected and left to die inhumanly away from their families and friends. The intolerance of this heroic treatment becomes more evident when we find that it had no influence whatever in diminishing the death-rate from this disease in Naples and in other localities where it was administered. But, however much these colossal and outrageous crimes, performed under the cloak of justice and of humanity, may shock us, they demonstrate how earnestly the Neapolitans believed in the contagiousness of consumption. If they failed to suppress it, how much can the modern contagionists expect to accomplish by requiring that consumptives should cease to spit on floors, ground, and pavements, and use fixed or portable spittoons instead. Indeed, when this advice is compared with the resolute and vigorous efforts of the unfortunate and deluded Italians, it seems more like the vaporings of a child's brain than the outcome of thoughtful and sober reflection; and it is sad to find men at this late day who are willing and anxious to repeat the superstitious follies and foibles of a century ago.

From all that has been said it seems perfectly plain to me that pulmonary consumption is not contagious in nature, and that its genesis has nothing whatever in common with that of smallpox, wound fever, and other diseases which arise through infection. The works of Villemin, of Pasteur, and of Koch have vastly enriched the science of experimental pathology, but they have absolutely no bearing on the natural origin of pulmonary consumption or on the question in dispute. No theory of any disease can be true unless it also points out the path of prevention and alleviation of that disease. Has the bacillus theory, which is so popular at the present day, rendered any such service to medical science? Has it lessened the mortality rate of this disease in the past, or does it give any assurance of doing so in the future? Can any one claim that it has not been accorded a fair and generous hearing? Was ever a medical theory launched under more favorable auspices, or received with greater enthusiasm? The medical profession, prompted by the hope, long deferred, that a knowledge of the tubercle bacillus would accomplish for phthisis what the germ idea had done for practical surgery, eagerly

and frankly accepted it, and thoroughly proved it ; yet he who takes a calm and impartial retrospect of the whole situation must own that never was an *ignis fatuus* pursued which left more promises broken and greater anticipations unfulfilled than the bacillus theory, so far as it stands related to the prevention and treatment of pulmonary consumption.

ADDRESS IN SURGERY.

BY JOHN B. ROBERTS, M.D.,

OF PHILADELPHIA.

THE revolution which has occurred in practical surgery since the discovery of the relation of microorganisms to the complications occurring in wounds has caused me to select this subject for discussion. Although many of my hearers are familiar with the germ theory of disease, it is possible that it may interest some of them to have put before them in a short address a few points in bacteriology which are of value to the practical surgeon.

It must be remembered that the groups of symptoms which were formerly classed under the heads "inflammatory fever," "symptomatic fever," "traumatic fever," "hectic fever," and similar terms, varying in name with the surgeon speaking of them, or with the location of the disease, are now known to be due to the invasion of the wound by microscopic plants. These bacteria, after entering the blood-current at the wound, multiply with such prodigious rapidity that the whole system gives evidence of their existence. Suppuration of wounds is undoubtedly due to these organisms, as is tubercular disease, whether of surgical or medical character. Tetanus, erysipelas, and many other surgical conditions have been almost proved to be the result of infection by similar microscopic plants, which, though acting in the same way, have various forms and life-histories.

A distinction must be made between the "yeast-plants," one of which produces thrush, and the "mould-plants," the existence of which, as parasites in the skin, gives rise to certain cutaneous diseases. These two classes of germs are foreign to the present topic, which is Surgery; and I shall, therefore, confine my remarks to that group of vegetable

parasites to which the term bacteria has been given. These are the microorganisms whose actions and methods of growth particularly concern the surgeon. The individual plants are so minute that it takes in the neighborhood of ten or fifteen hundred of them grouped together to cover a spot as large as a full-stop or period used in punctuating an ordinary newspaper. This rough estimate applies to the globular and the egg-shaped bacteria, to which is given the name "coccus" (plural, cocci). The cane- or rod-shaped bacteria are rather larger plants. Fifteen hundred of these placed end to end would reach across the head of a pin. Because of the resemblance of these latter to a walking-stick they have been termed bacillus (plural, bacilli).

The bacteria most interesting to the surgeon belong to the cocci and the bacilli. There are other forms which bacteriologists have dubbed with similar descriptive names, but they are more interesting to the physician than to the surgeon. Many microorganisms, whether cocci, bacilli, or of other shapes, are harmless; hence they are called non-pathogenic, to distinguish them from the disease-producing or pathogenic germs.

As many trees have the same shape and a similar method of growing, but bear different fruits—in the one case edible, and in the other poisonous—so, too, bacteria may look alike to the microscopist's eye, and grow much in the same way, but one will cause no disease, while the other will produce perhaps tuberculosis of the lungs or brain.

Many scores of bacteria have been, by patient study, differentiated from their fellows and given distinctive names. Their nomenclature corresponds in classification and arrangement with the nomenclature adopted in different departments of botany. Thus, we have the pus-causing chain-coccus (*streptococcus pyogenes*), so-called because it is globular in shape; because it grows with the individual plants attached to each other, or arranged in a row like a chain of beads on a string; and because it produces pus. In a similar way we have the pus-causing grape-coccus of a golden color (*staphylococcus pyogenes aureus*). It grows with the individual plants arranged somewhat after the manner of a bunch of grapes, and when millions of them are collected together the mass has a golden-yellow hue. Again, we have the bacillus tuberculosis; the

rod-shaped plant which is known to cause tuberculosis of the lungs, joints, brain, etc.

It is hardly astonishing that these fruitful sources of disease have so long remained undetected, when their microscopic size is borne in mind. That some of them do cause disease is indisputable, since bacteriologists have, by their watchful and careful methods, separated almost a single plant from its surroundings and congeners, planted it free from all contamination, and observed it produce an infinitesimal brood of its own kind. Animals and patients inoculated with the plants thus cultivated have rapidly become subjects of the special disease which the particular plant was supposed to produce.

The difficulty of such investigation becomes apparent when it is remembered that under the microscope many of these forms of vegetable life are identical in appearance, and it is only by observing their growth when in a proper soil that they can be distinguished from each other. In certain cases it is quite difficult to distinguish them by the physical appearances produced during their growth. Then it is only after an animal has been inoculated with them that the individual parasite can be accurately recognized and called by name. It is known then by the results which it is capable of producing.

The various forms of bacteria are recognized, as I have said, by their method of growth and by their shape. Another means of recognition is their individual peculiarity of taking certain dyes, so that special plants can be recognized, under the microscope, by the color which a dye gives to them; and which they refuse to give up when treated with chemical substances which remove the stain from, or bleach, all the other tissues which at first have been similarly stained.

The similarity between bacteria and the ordinary plants with which florists are familiar is, indeed, remarkable. Bacteria grow in animal and other albuminous fluids; but it is just as essential for them to have a suitable soil as it is for the corn or wheat that the farmer plants in his field. By altering the character of the albuminous fluid in which the micro-organism finds its subsistence, these small plants can be given a vigorous growth, or may be actually starved to death. The farmer knows that it is impossible for him to grow the same crop year after year in the same field, and he is, therefore,

compelled to rotate his crops. So it is with the microscopic plants which we are considering. After a time the culture-fluid or soil becomes so exhausted of its needed constituents, by the immense number of plants living in it, that it is unfit for their life and development. Then this particular form will no longer thrive; but some other form of bacterium may find in it the properties required for functional activity, and may grow vigorously. It is probable that exhaustion or absence of proper soil is an important agent in protecting man from sickness due to infection from bacteria. The ever-present bacteria often gain access to man's blood through external wounds, or through the lungs and digestive tracts; but unless a soil suited for their development is found in its fluids, the plants will not grow. If they do not grow and increase in numbers, they can do little harm.

Again, there are certain bacteria which are so antagonistic to each other that it is impossible to make them grow in company, or to coëxist in the blood of the same individual. For example, an animal inoculated with erysipelas germs cannot be successfully inoculated immediately afterward with the germs of malignant pustule. This antagonism is illustrated by the impossibility of having a good crop of grain in a field overrun with daisies. On the other hand, however, there are some microorganisms which flourish luxuriantly when planted together in the same fluid; somewhat after the manner of pumpkins and Indian corn growing between the same fence rails. Others seem unwilling to grow alone, and only flourish when planted along with other germs. It is very evident, therefore, that bacteriology is a branch of botany, and that Nature shows the same tendencies in these minute plants as it does in the larger vegetable world visible to our unaided eyes.

As the horticulturist is able to alter the character of his plants by changing the circumstances under which they live, so can the bacteriologist change the vital properties and activities of bacteria by chemical and other manipulations of the culture substances in which these organisms grow. The power of bacteria to cause pathological changes may thus be weakened and attenuated; in other words, their functional power for evil is taken from them by alterations in the soil. The pathogenic, or disease-producing, power may be increased by

similar, though not identical, alterations. The rapidity of their multiplication may be accelerated, or they may be compelled to lie dormant and inactive for a time; and, on the other hand, by exhausting the constituents of the soil upon which they depend for life, they may be killed.

It is a most curious fact, also, that it is possible by selecting and cultivating only the lighter colored specimens of a certain purple bacterium for the bacteriologist to obtain finally a plant which is nearly white, but which has the essential characteristics of the original purple fungus. In this we see the same power which the florist has to alter the color of the petals of his flowers by various methods of selective breeding.

The destruction of bacteria by means of heat and antiseptics is the essence of modern surgery. It is, then, by preventing access of these parasitic plants to the human organism (aseptic surgery), or the destruction of them by chemical agents and heat (antiseptic surgery) that we are enabled to invade by operative attack regions of the body which a few years ago were sacred.

When the disease-producing bacteria gain access to the tissues and blood of human and other animals by means of wounds, or through an inflamed pulmonary or alimentary mucous membrane, they produce pathological effects, provided there is not sufficient resistance and health-power in the animal's tissues to antagonize successfully the deleterious influence of the invading parasitic fungus. It is the rapid multiplication of the germs which furnishes a *continuous* irritation that enables them to have such a disastrous effect upon the tissues of the animal. If the tissues had only the original dose of microbes to deal with, the warfare between health and disease would be less uncertain in outcome. Victory would usually be on the side of the tissues and health. The immediate cause of the pathogenic influence is probably the chemical excretions which are given out by these microscopic organisms. All plants and animals require a certain number of substances to be taken into their organisms for preservation of their vital activities. After these substances have been utilized there occurs a sort of excretion of other chemical products. It is probably the excretions of many millions of microorganisms, circulating in the blood, which give rise to

the disease characteristic of the fungus with which the animal has been infected. The condition called *sapræmia*, or septic intoxication, for example, is undoubtedly due to the entrance of the excretory products of putrefaction bacteria into the circulation. This can be proved by injecting into an animal a small portion of these products obtained from cultures of germs of putrefaction. Characteristic symptoms will at once be exhibited.

Septicæmia is a similar condition due to the presence of the putrefactive organisms themselves, and hence of their products, or ptomaines, also in the blood. The rapidity of their multiplication in this albuminous soil and the great amount of excretion from these numerous fungi make the condition more serious than *sapræmia*. Clinically, the two conditions occur together.

The rapidity with which symptoms may arise after inoculation of small wounds with a very few germs will be apparent, when it is stated that one parasitic plant of this kind may, by its rapidity of multiplication, give rise to fifteen or sixteen million individuals within twenty-four hours. The enormous increase which takes place within three or four days is almost incalculable. It has been estimated that a certain bacillus, only about one-thousandth of an inch in length, could, under favorable conditions, develop a brood of progeny in less than four days which would make a mass of fungi sufficient to fill all the oceans of the world, if they each had a depth of one mile.

Bacteria are present everywhere. They exist in the water, earth, air, and within our respiratory and digestive tracts. Our skin is covered with millions of them, as is every article about us. They can circulate in the lymph and blood and reach every tissue and part of our organisms by passing through the walls of the capillaries. Fortunately, they require certain conditions of temperature, moisture, air, and organic food for existence and for the preservation of their vital activities.

If the surroundings are too hot, too cold, or too dry, or if they are not supplied with a proper quantity and quality of food, the bacterium becomes inactive until the surrounding circumstances change; or it may die absolutely. The spores, which finally become full-fledged bacteria, are able to stand a

more unfavorable environment than the adult bacteria. Many spores and adults, however, perish. Each kind of bacterium requires its own special environment to permit it to grow and flourish. The frequency with which an unfavorable combination of circumstances occurs limits greatly the disease-producing power of the pathogenic bacteria.

Many bacteria, moreover, are harmless and do not produce disease, even when present in the blood and tissues. Beside this, the white blood-cells are perpetually waging war against the bacteria in our bodies. They take the bacteria into their interiors and render them harmless by eating them up, so to speak. They crowd together and form a wall of white blood-cells around the place where the bacteria enter the tissue, thus forming a barrier to cut off the blood-supply to the germs and, perhaps, to prevent them from entering the general blood-current.

The war between the white blood-cells and the bacteria is a bitter one. Many bacteria are killed; but, on the other hand, the life of many blood-cells is sacrificed by the bacteria poisoning them with ptomaines. The tissue cells, if healthy, offer great resistance to the attacks of the army of bacteria. Hence, if the white cells are vigorous and abundant at the site of the battle, defeat may come to the bacteria; and the patient suffer nothing from the attempt of these vegetable parasites to harm him. If, on the other hand, the tissues have a low resistive power, because of general debility of the patient, or of a local debility of the tissues themselves, and the white cells be weak and not abundant, the bacteria will gain the victory, get access to the general blood-current, and invade every portion of the organism. Thus, a general or a local disease will be caused; varying with the species of bacteria with which the patient has been affected, and the degree of resistance on the part of the tissues.

From what has been stated it must be evident that the bacterial origin of disease depends upon the presence of a disease-producing fungus and a diminution of the normal healthy tissue-resistance to bacterial invasion. If there is no fungus present, the disease caused by such fungus cannot develop. If the fungus be present and the normal or healthy tissue-resistance be undiminished, it is probable that disease will not

occur. As soon, however, as overwork, injury of a mechanical kind, or any other cause diminishes the local or general resistance of the tissues and individual, the bacteria get the upper hand, and are liable to produce their malign effect.

Many conditions favor the bacterial attack. The patient's tissues may have an inherited peculiarity, which renders it easy for the bacteria to find a good soil for development; an old injury or inflammation may render the tissues less resistant than usual; the point at which inoculation has occurred may have certain anatomical peculiarities which make it a good place in which bacteria may multiply; the blood may have undergone certain chemical changes which render it better soil than usual for the rapid growth of these parasitic plants.

The number of bacteria originally present makes a difference also. It is readily understood that the tissues and white blood-cells would find it more difficult to repel the invasion of an army of a million microbes than the attack of a squad of ten similar fungi. I have said that the experimenter can weaken and augment the virulence of bacteria by manipulating their surroundings in the laboratory. It is probable that such a change occurs in nature. If so, some bacteria are more virulent than others of the same species; some less virulent. A few of the less virulent disposition would be more readily killed by the white cells and tissues than would a larger number of the more virulent ones. At other times the danger from microbic infection is greater because there are two species introduced at the same time; and these two multiply more vigorously when together than when separated. They are, in fact, two allied hosts trying to destroy the blood-cells and tissues. This occurs when the bacteria of putrefaction and the bacteria of suppuration are introduced into the tissues at the same time. The former cause sapræmia and septicæmia, the latter cause suppuration. The bacteria of tuberculosis are said to act more viciously if accompanied by the bacteria of putrefaction. Osteomyelitis is of greater severity, it is believed, if due to a mixed infection with both the white and golden grape-coccus of suppuration.

I have previously mentioned that the bacteria of malignant pustule are powerless to do harm when the germs of erysipelas

are present in the tissues and blood. This is an example of the way in which one species of bacteria may actually aid the white cells, or leucocytes, and the tissues in repelling an invasion of disease-producing microbes.

Having occupied a portion of the time allotted to me in giving a crude and hurried account of the characteristics of bacteria, let me conclude my address by discussing the relation of bacteria to the diseases most frequently met with by the surgeon.

Mechanical irritations produce a very temporary and slight inflammation, which rapidly subsides because of the tendency of Nature to restore the parts to health. Severe injuries, therefore, will soon become healed and cured if no germs enter the wound.

Suppuration of operative and accidental wounds was, until recently, supposed to be essential. We now know, however, that wounds will not suppurate if kept perfectly free from one of the dozen forms of bacteria that are known to give rise to the formation of pus.

The doctrine of present surgical pathology is that suppuration will not take place if pus-forming bacteria are kept out of the wound, which will heal by first intention without inflammation and without inflammatory fever.

In making this statement I am not unaware that there is a certain amount of fever following various severe wounds within twenty-four hours, even when no suppuration occurs. This wound-fever, however, is transitory; not high; and entirely different from the prolonged condition of high temperature formerly observed nearly always after operations and injuries. The occurrence of this "inflammatory," "traumatic," "surgical," or "symptomatic" fever, as it was formerly called, means that the patient has been subjected to the poisonous influence of putrefactive germs, the germs of suppuration, or both.

We now know why it is that certain cases of suppuration are not circumscribed but diffuse, so that the pus dissects up the fascias and muscles and destroys with great rapidity the cellular tissue. This form of suppuration is due to a particular form of bacterium called the pus-causing "chain-coccus."

Circumscribed abscesses, however, are due to one or more of the other pus-causing microorganisms.

How much more intelligent is this explanation than the old one that diffuse abscesses depended upon some curious characteristic of the patient. It is a satisfaction to know that the two forms of abscess differ because they are the result of inoculation with different germs. It is practically a fact that wherever there is found a diffuse abscess there will be discovered the streptococcus pyogenes, which is the name of the chain-coccus above mentioned.

So, also, is it easy now to understand the formation of what the old surgeons called "cold" abscesses, and to account for the difference in appearance of its puriform secretion from the pus of acute abscesses. Careful search in the fluid coming from such "cold" abscesses reveals the presence of the bacillus of tuberculosis, and proves that a "cold" abscess is not a true abscess, but a lesion of local tuberculosis.

Easy is it now to understand the similarity between the "cold abscess" of the cervical region and the "cold abscess" of the lung in a phthisical patient. Both of them are, in fact, simply the result of invasion of the tissues with the ubiquitous tubercle bacillus; and are not due to pus-forming bacteria.

Formerly it was common to speak of the scrofulous diathesis, and attempts were made to describe the characteristic appearance of the skin and hair pertaining to persons supposed to be of scrofulous tendencies. The attempt was unsuccessful and unsatisfactory. The reason is now clear because it is known that the brunette or the blonde, the old or the young, may become infected with the tubercle bacillus. Since the condition depends upon whether one or the other become infected with the generally present bacillus of tubercle, it is evident that there can be no distinctive diathesis. It is more than probable, moreover, that the cutaneous disease, so long described as lupus vulgaris, is simply a tubercular ulcer of the skin, and not a special disease of unknown causation.

The metastatic abscesses of pyæmia are clearly explained when the surgeon remembers that they are simply due to a softened blood-clot containing pus-causing germs being carried

through the circulation and lodged in some of the small capillaries.

A patient suffering with numerous boils upon his skin has often been a puzzle to his physician, who has in vain attempted to find some cause for the trouble in the general health alone. Had he known that every boil owed its origin to pus-bacteria, which had infected a sweat-gland or hair-follicle, the treatment would probably have been more efficacious. The suppuration is due to pus germs either lodged upon the surface of the skin from the exterior, or deposited from the current of blood in which they have been carried to the spot.

I have not taken time to go into a discussion of the methods by which the relationship of microörganisms to surgical affections has been established; but the absolute necessity for every surgeon to be fully alive to the inestimable value of aseptic and antiseptic surgery has led me to make the foregoing statements as a sort of *résumé* of the relation of the germ theory of disease to surgical practice. It is clearly the duty of every man who attempts to practise surgery to prevent, by every means in his power, the access of germs, whether of suppuration, putrefaction, erysipelas, tubercle, tetanus, or any other disease to the wounds of a patient. This, as we all know, can be done by absolute bacteriological cleanliness. It is best, however, not to rely solely upon absolute cleanliness, which is almost unattainable, but to secure further protection by the use of heat and antiseptic solutions. I am fully of the opinion that chemical antiseptics would be needless if absolute freedom from germs was easily obtained. When I know that even such an enthusiast as I myself is continually liable to forget or neglect some step in this direction, I feel that the additional security of chemical antisepsis is of great value. It is difficult to convince the majority of physicians, and even ourselves, that to touch a finger to a door knob, to an assistant's clothing, or to one's own body may vitiate the entire operation by introducing one or two microbic germs into the wound.

An illustration of how carefully the various steps of an operation should be guarded is afforded by the appended rules, which I have adopted at the Woman's Hospital of Philadelphia for the guidance of the assistants and nurses. If such

rules were taught every medical student and every physician entering practice as earnestly as the paragraphs of the catechism are taught the Sunday-school pupil (and they certainly ought to be so taught) the occurrence of suppuration, hectic fever, septicæmia, pyæmia, and surgical erysipelas would be practically unknown. Death, then, would seldom occur after surgical operations, except from hemorrhage, shock, or exhaustion.

I have taken the liberty of bringing here a number of culture tubes containing beautiful specimens of some of the more common and interesting bacteria. The slimy masses seen on the surfaces of jelly contained in the tubes are many millions of individual plants, which have aggregated themselves in various forms as they have been developed as the progeny of the few parent cells planted in the jelly as a nutrient medium or soil.

With this feeble plea, Mr. President and Members of the Society, I hope to create a realization of the necessity for knowledge and interest in the direction of bacteriology; for this is the foundation of modern surgery. There is, unfortunately, a good deal of abominable work done under the names of antiseptic and aseptic surgery, because the simplest facts of bacteriology are not known to the operator.

Rules to be observed in Operations at Dr. Roberts's Clinic at the Woman's Hospital of Philadelphia.—After wounds or operations high temperature usually, and suppuration always, is due to blood poisoning, which is caused by infection with vegetable parasites called bacteria.

These parasites ordinarily gain access to the wound from the skin of the patient, the finger-nails or hands of the operator or his assistants, the ligatures, sutures, or dressings.

Suppuration and high temperature should not occur after operation wounds if no suppuration has existed previously.

Bacteria exist almost everywhere as invisible particles in the dust; hence, everything that touches or comes into even momentary contact with the wound must be germ-free—technically called “sterile.”

A sterilized condition of the operator, the assistant, the wound, instruments, etc., is obtained by removing all bacteria by means of absolute surgical cleanliness (asepsis), and by the

use of those chemical agents which destroy the bacteria not removed by cleanliness itself (antiseptis).

Surgical cleanliness differs from the housewife's idea of cleanliness in that its details seem frivolous, because it aims at the removal of microscopic particles. Stains, such as housewives abhor, if germ-free, are not objected to in surgery.

The hands and arms, and especially the finger-nails of the surgeon, assistants, and nurses should be well scrubbed with hot water and soap, by means of a nail-brush, immediately before the operation. The patient's body about the site of the proposed operation should be similarly scrubbed with a brush and cleanly shaved. Subsequently the hands of the operator, assistants and nurses, and the field of operation should be immersed in, or thoroughly washed with, corrosive sublimate solution (1:1000 or 1:2000). Finger-rings, bracelets, bangles, and cuffs worn by the surgeon, assistants, or nurses must be removed before the cleansing is begun; and the clothing covered by a clean white apron, large enough to extend from neck to ankles and provided with sleeves.

The instruments should be similarly scrubbed with hot water and soap, and all particles of blood and pus from any previous operation removed from the joints. After this they should be immersed for at least fifteen minutes in a solution of beta-naphthol (1:2500), which must be sufficiently deep to cover every portion of the instruments. After cleansing the instruments with soap and water, baking in a temperature a little above the boiling-point of water is the best sterilizer. During the operation the sterilized instruments should be kept in a beta-naphthol solution and returned to it when the operator is not using them.

[The antiseptic solutions mentioned here are too irritating for use in operations within the abdomen and pelvis. Water made sterile by boiling is usually the best agent for irrigating these cavities, and for use on instruments and sponges. The instruments and sponges must be previously well sterilized.]

Sponges should be kept in a beta-naphthol or a corrosive sublimate solution during the operation. After the blood from the wound has been sponged away, they should be put in another basin containing the antiseptic solution, and cleansed anew before being used again. The antiseptic sutures and

ligatures should be similarly soaked in beta-naphthol solution during the progress of the operation.

No one should touch the wound but the operator and his first assistant. No one should touch the sponges but the operator, his first assistant, and the nurse having charge of them. No one should touch the already-prepared ligatures or instruments except the surgeon and his first or second assistants.

None but those assigned to the work are expected to handle instruments, sponges, dressings, etc., during the operation.

When anyone taking part in the operation touches an object not sterilized, such as a table, a tray, or the ether towel he should not be allowed to touch the instruments, the dressings, or the ligatures until his hands have been again sterilized. It is important that the hands of the surgeon, his assistants and nurses should not touch any part of his own body, nor of the patient's body, except at the sterilized seat of operation, because infection may be carried to the wound. Rubbing the head or beard, or wiping the nose requires immediate disinfection of the hands to be practised.

The trailing ends of ligatures and sutures should never be allowed to touch the surgeon's clothing or to drag upon the operating-table, because such contact may occasionally, though not always, pick up bacteria which may cause suppuration in the wound.

Instruments which fall upon the floor should not be again used until thoroughly disinfected.

The clothing of the patient, in the vicinity of the part to be operated upon, and the blanket and sheets used there to keep him warm, should be covered with dry sublimate towels. All dressings should be kept safe from infection by being stored in glass jars, or wrapped in dry sublimate towels.

ADDRESS IN OBSTETRICS.

BY FRANCES N. BAKER, M.D.,
OF MEDIA.

THIS paper was prepared for the meeting of the Society that was to have taken place a year ago, but which was adjourned because of the Johnstown disaster; hence its contents are far from new. I am more than sorry not to have been able to bring the subject to date. Much that is valuable could have been added to the material already collected. But as time and strength have both been conspicuously absent, I feel obliged to submit, with many regrets, my antediluvian paper.

To begin the annual address with a double apology seems beneath the dignity of the occasion, and yet some further explanation seems necessary, for the reason that what, in passing, seemed an easy task, has been found in the performance so impossible.

The mass of material from which these extracts have been made was simply overwhelming; consequently, at the onset, I confess my inability to bring before you a *résumé* of even a fraction of the many obstetrical papers that have appeared during the year, or to condense into any portable bulk a tithe of the many discussions of the same that have taken place since our last meeting.

In view of these facts, it would have required the perfection of judgment not to have chosen some things that could have been *well omitted* and not to have omitted many things that should have been chosen.

In reviewing the work of the year 1888 it has impressed me not so much as having been characterized by "wonderful discovery" and extravagant claims (although no year is exempt from the latter), as by a more or less steady disposition to revive old methods; to reëxamine old arguments; to scrutinize closely the claims of more recent discoveries, and, finally, to establish truth whenever and wherever found.

Another equally pleasant feature in the year's progress consists in the comparative absence of vituperation in the discussions. There has been no dearth of earnest controversy, but it has been tempered with kindness. But more important, because an earnest of thoroughly healthful growth, has been the increasing willingness to report unsuccessful cases. It often requires a high degree of courage to acknowledge failure; possessing such moral bravery as a body, greater professional triumphs may confidently be expected for the future.

ANTISEPTICS.—Notwithstanding the recent statement that “antiseptics have had their day,” the necessity of *aseptic*, if not antiseptic, midwifery is a settled problem to the greater portion of the medical profession, and the distinction now made between antiseptic *precautions* and antiseptic *treatment* acknowledged a wise one. For it is beyond all cavil that in proportion as the details of the earlier precautionary measures are faithfully carried out and a condition of asepsis secured, by just so much are the *later* antiseptic measures rendered unnecessary. And if, since the introduction of antiseptics, “the mortality of lying-in hospitals has fallen to less than one per cent.,” and if, as it has been claimed by the opponents of antiseptics, this reduction of the death-rate is due to *simple cleanliness*, then what manner and quantity of filth must have previously existed.

The immunity of that very considerable class of women who develop and bring forth their offspring amid the most filthy surroundings must be due to the “resistive power,” with them, being at its maximum. But *they* occasionally develop sepsis. Whether the mortality is as great in this class of patients after infection, as with those whose circumstances enable them to have the best sanitary arrangements, with the best of medical care and as much of it as the gravity of the condition demands, we have no certain means of knowing.

That “it is impossible to secure a condition of obstetrical asepsis” is a poor argument against cleanly habits of person, clean instruments in use, and scrupulosity of dress. “It goes without the saying” that the clothing habitually worn in the routine of general work is most unsafe attire in which to attend confinement cases. Your patient may escape, but the time might come when you would have just cause to regret your temerity.

It is surprising how well informed and alert the laity are upon some of these matters.

I personally know of a young physician whose further entrance into obstetrical practice was indefinitely delayed by the serious oversight (having been called as a substitute in a confinement case) of making his preliminary examination without having previously attended to the purification of his hands. Unfortunately for him, his critics had been familiar with the use of the nail-brush and other paraphernalia of the careful obstetrician, and knew of what they spake, and speak they did, for the reason that the patient made a very poor recovery.

Failing, as we sometimes do, to secure, by simple measures of cleanliness, puerperal asepsis, the question of antiseptic treatment becomes the second article of our faith and practice. For if micro-organisms evolve a poison during their development and multiplication, and this poison, when absorbed, gives rise to the phenomena of sepsis, and the severity of symptoms is in proportion to the amount of poison absorbed, "the choice of a measure, or measures, that shall destroy these organisms and prevent their growth and multiplication becomes one of the most delicate and responsible of the many questions demanding solution at our hands." A substance having microbicidal properties at once suggests itself, and by almost universal medical consent corrosive sublimate has come to be regarded as *the* substance having the most decided antiseptic properties. "But not a few cases of sublimate poisoning having occurred, the selection of a substance having the requisite microbicidal properties combined with greater safety," or else a uniform and more careful method of using the one already adopted, forces itself upon our consideration.

The latter alternative promises immunity from danger, excluding accidents due to idiosyncrasies, to which about five per cent. of the cases of mercurialism following douches were due that occurred in the London General Lying-in Hospital. It is interesting to note here that, of the eleven cases out of one hundred and eighty-two in which poisoning occurred, but in two had a trace of albumin been discovered; whilst two cases of Bright's disease during pregnancy to which sublimate douches had been administered were without symptoms of poisoning, and that *anaemic* patients were not observed to be especially prone to mercurialism. These observations differ somewhat from the usual conclusions upon this subject.

A still further dilution of the sublimate solution is proposed, both for the vaginal as well as the intra-uterine irrigation. Good

authorities give a strength of but 1 to 40,000 as capable of preventing the development of germs, and that 1 to 20,000 will destroy them when already present.

The repairing of all tears about the orifices belongs as much to the prevention of infection proper as to the precautionary measures against mercurialism.

The practice of first washing the parturient canal with water that has been previously boiled strongly recommends itself as a measure of safety against the formation of "sublimate adhesive albuminous compounds that may be subsequently absorbed."

A second douche *after* the sublimate one renders the precaution doubly sure, but the danger of over-fatiguing the patient has to be considered, as well as some heed must be given to the objection many patients make to too frequent and too long continued intermeddling. Many measures productive of excellent results in hospitals are entirely inadmissible in private work. The *consent* of the patient is always a very important factor, and cannot well be dispensed with.

The French recommendation for vaginal antiseptics some days previous to childbirth seems entirely impracticable in private rural work. Verchere recommends that weak mercurial preparations should be personally administered by the obstetrician himself twice daily for some days previous to delivery; that after the mercurial irrigation, vaginal tampons of iodoform "cotton-wool" should be placed *in situ* and left there until the next douche."

The value and the dangers of intra-uterine irrigation seem to be fairly balanced by a consensus of medical experiences, and that their use should be limited to such cases only as present special indication, as when there has been "gross infection."

The profession will scarcely make a puerperal temperature of 101° a standard temperature indicating the necessity for this measure. Such temperature continuing over twenty-four hours in the lying-in may properly be a cause for anxiety, but very few cases with such temperature need interference of so radical a character.

This operation is now rendered far safer by the use of the fountain syringe with any one of the "two-way channelled attachments," of which there are now several.

Of the *chemical substances* proposed as a substitute for the corrosive sublimate for the disinfection of the maternal passages, tincture

of iodine, $\frac{1}{2}$ drachm to the pint, is one. Its safety and volatility are the superior advantages claimed for it.

Three per cent. solution of acetic acid has also been used, and found safe and efficient.¹

From one-half to two per cent. solutions of creolin have been highly recommended. "Its innocuousness renders it preferable to the sublimate, but its odor is objectionable for the double reason that in doubtful cases it would mask the offensive character of the lochia."

It is strange that the earnest plea made by Dr. Eugene Bernardy for a more extensive trial of the biniodide of mercury has not attracted more professional attention. It is declared to be less dangerous than the sublimate, a more active antiseptic, and less injurious to instruments. It is not irritant to wounds. Five per cent. solutions can be applied to the skin without producing irritation. Its insolubility can be overcome by the addition of iodide of potassium, chloride of potassium or sodium. 1 to 4000 is the strength recommended for internal irrigation. Its expense is, however, a matter of some significance.

On no less an authority than Gaillard Thomas, three to five per cent. solutions of carbolic acid are quite sufficient as a preventive measure. He objects to the use of the sublimate for external ablutions, because of the tendency to produce a troublesome eczema about the orifices.

Mathews Duncan regards hot, saturated boric acid douches quite sufficient for private work, and that the sublimate vaginal douches of the usual strength—1 to 5000—quite unnecessary outside of hospital work.

I do not think we are less cleanly in our habits than our English cousins, and I believe that many of the lying-in cases, on *this side* of the water, have gone on to successful termination because of our stronger antiseptic precautions that might otherwise have led the doctor over thorny paths and the patient into dangerous places.

Since the adoption of the impervious dressing of Garrigues, at the Woman's Hospital, of Philadelphia, the one hundred and three subsequent deliveries have been without a hint of septic trouble. This entire freedom from complications of every kind during the lying-in Dr. Anna Fullerton attributes largely to the antiseptic dressing.

¹ Dr. Parvin.

ELECTRICITY.—The new field of *electro-therapy* has received widespread attention during the year. But, like many other therapeutic measures, its usefulness is in danger of being curtailed and its appreciation jeopardized by unwise enthusiasm. It is the old story of a cause being injured by its friends. Everything has been claimed for it. So infinite is its power that sceptics disbelieve entirely in its utility.

The claim sounds chimerical to conservative minds that “the current will, in time, be substituted for the surgeon’s knife.” The disposition to operate has, no doubt, been excessive, and with the advent of electricity the reaction has set in, but scarcely, however, as cause and effect.

No unprejudiced observer has reason to doubt that “it promises much in the way of symptomatic relief in cases that cannot be brought to a surgical issue,” but it behooves us to use so powerful and many-sided an agent with caution, for “a margin yet remains for careful experimentation and painstaking observation.” Since the introduction of a reliable galvanometer the administration of the current has been placed upon a more trustworthy basis and the dose accurately measured.

The *manner* in which the curative results are brought about still remains uncertain, but this is true of many of the drugs of the pharmacopœia without which we should be sorely hampered at the bedside; for, after all, relief is what the suffering demand at the hands of the physician, and often quickly at that.

As a more perfect method of treatment is elaborated, much that was heretofore obscure will be made plain. And amongst the earliest reforms expected from the zealous workers in this department is that the cases best adapted to electrical treatment will be selected with more mature judgment and discrimination.

A problem of great interest awaiting solution at their hands is *the manner by which fibroid tumors decrease in size and disappear from the use of the current.*

Whether electricity *has* the power to act upon the cells of the living structure so as to influence their growth or decay has not yet been satisfactorily demonstrated.

I quote, as briefly as possible, from a report made to the British Gynecological Society upon some of the more uncertain aspects of medical electricity.

- I. That electrolysis takes place at *both* poles.
- II. That chemical action secondary to electrolysis takes place at both poles and is most destructive at the positive pole.
- III. That electrolysis does not appear to take place at the intervening space between the poles traversed by the current.
- IV. That the transport of elements has *some* effect upon living tissues through which it takes place.
- V. That no change takes place in the vessels during the passage of the current except a local hyperæmia due to chemical action at both poles.

In consequence of this property of electrolysis, called the "transport of elements," the hypothesis has been advanced that whilst the ordinary tissues of the body have the power to recuperate from any effects produced upon them by this property, the cells of tumors, being of lower vitality, may be checked in their growth and, in time, destroyed by it.

Several experimenters in France and Germany have taken advantage of the transport of elements to introduce substances into the body. Our English brethren, after many carefully conducted experiments in this direction, report negative results.

I shall detain you with but a few of the many indications for the medical use of the current. It is credited with being of great service in the severe vomiting of pregnancy. In none of the cases so treated were there any pathological conditions present of the uterus or appendages. In the absence of any such disease, the cause of the vomiting was referred to the reflex action between the gastric and uterine nerve-supplies, or to a functional neuralgia of a reflex nature. The treatment consisted of the constant current to the cervix by means of the anode, whilst the cathode—a metal plate four by five inches square—was applied to the spine between the eighth and twelfth dorsal vertebræ. The current was of low density and not intermittent. The application began at not more than three milliampères and the strength never exceeded five. Each sitting lasted from seven to ten minutes. The vomiting ceased in four days. As some nausea still existed, the treatment was continued a few days longer.

If electricity can be successfully substituted for "Alexander's operation," there will be small reason for regret, because of the special difficulties declared to attend the proper performance of it by those who have operated most frequently in this country. The advocates of electricity claim that the constant current will stimu-

late and invigorate the weakened and relaxed fibres of the so-called round ligaments, and teach them again their cunning. And that likewise the number of trachelorrhaphies can be greatly reduced by the use of the current. That the symptoms demanding attention in lacerated cervixes are due to increased size of the organ and to the attending endometritis, both of which conditions are removable by electrical applications.

For the resuscitation of the newborn, faradism has succeeded when all other methods have failed. In one reported case the foetus was fully restored after it had been apparently dead for forty-five minutes. In another case (Dr. Hirst's) the application was continued for an hour before the child was resuscitated. All other known means had failed before the use of electricity.

Another use for the current is found in the "remote removal" of the secundines after abortion, as a substitute for the curette. The reason offered in support of this claim is that the current acts most energetically upon tissues having least vitality, hence, least power of resistance; consequently, it promotes the exfoliation of the decidual membrane or retained placental tissue."

The galvanic is the current employed, the positive pole the one for intra-uterine application, and should be carried to that portion of the cavity occupied by the adherent tissues."

The faradic is the preferable current to employ for the purpose of stimulating involution after abortion; the application should be made every other day directly to the uterus, employing the coil of quantity, which is the current obtained by a thick wire with moderately slow vibrations."

This current is also useful for the *immediate* removal of the secundines, for the reason that it is an exciter of feeble uterine contractions, and in this way separates and expels retained fragments.

Electricity still has its advocates for the purpose of checking post-partum hemorrhage, especially if the hemorrhage be due to exhausted nerve-force. "The lower the vitality, the more urgent the indication for the use of the current." If the resultant contraction be but temporary, a respite from the hemorrhage is gained, and resort can be made to the current again and again. The usual absence of the necessary apparatus is of itself a barrier to the popularization of this method of arresting hemorrhage, to say

nothing of the superiority of prompt compression of the uterus, assisted by the powerful adjuvants, hot water and ergot.

Electricity as a means of inducing premature labor has been found insufficient of itself. "The indication for its use for this purpose is deemed to be a very narrow one." In those cases where the introduction of bougies is difficult, it may be used to induce dilatation, after which galvanization may be discontinued; hence, its use in this direction is only in the capacity of an adjuvant.

The *one* indication for the use of electricity, the issues of which are the most momentous, is in the event of extra-uterine pregnancy. It has been claimed "never to have failed when properly applied." "That a diagnosis once having been made, the foeticidal effects of the current should be employed promptly. Moreover, that no large or expensive battery is necessary. A moderate interrupted current is all that is required. Nor is any great manipulative experience requisite." "Any one capable of making a diagnosis by examination will find the treatment comparatively easy."

I leave this statement itself to suggest that it probably means more than would at first appear upon the face of it.

"To be effective the current should be as strong as the patient can bear, not turned on all at once, but brought gradually to that point."

"The success has been so uniform that it seems time to put it down as an axiom based upon experience that in early extra-uterine pregnancy electricity is *the* remedy, and that it is the duty of the physician to give the patient the benefit of its application." That after the death of the foetus it can readily be dealt with by the absorbent processes of nature, so that up to the fifth month electricity is to be preferred to the more radical and dangerous procedure of laparotomy." Notwithstanding this positive and definite counsel coming from a source eminent enough to constitute it an authority, more than one dissenting voice has been raised vehemently protesting against the use of electricity in extra-uterine pregnancy. "An investigation into the secondary dangers, as well as into the after-condition of the health, of the women upon whom electrical foetocide has been performed is of paramount importance in settling the question of electricity *versus* exsection."

ECTOPIC GESTATION.—The subject, of all others, upon which the eyes of the medical profession as a unit have been turned, is that of extra-uterine pregnancy. Medical literature teems with

reports of cases and of discussions upon the same. The interest is widespread and shows no symptoms of abatement. One of the points which has elicited the most discussion and produced the most varying testimony is that of the diagnosis. Some claim that "previous to rupture it is more easy of recognition than normal pregnancy of the same date," if the opportunity of examination be given. Others emphatically declare that "it is impossible more than to *guess* at the diagnosis until the symptoms of rupture appear." Abundant testimony exists that both these positions are fairly tenable by their respective advocates.

From an industrious study of the literature of the subject the conclusions forced upon us are, that the symptoms of early extra-uterine pregnancy are "neither distinct nor constant;" that "the history is often misleading;" "that the largest number of cases occur in those who have been previously sterile, or after a comparatively long season of sterility;" that the reason so few diagnoses have been made is that the early symptoms are not of a character to induce the patient to present herself for examination;" "that many cases have been reported as cures that are entirely untrustworthy;" that the diagnosis in the future is more and more certain if we keep ever before us the possibility of the existence of the condition;" that those who have failed have done so (with the largest experience and most extensive knowledge of the subject) from the fact of never, in the absence of symptoms of pregnancy and with no history to suggest it, having thought of the possibility of it." The danger in the future may lie in entirely the opposite direction, for, as Tait, with characteristic *naïveté*, puts it, "not every elastic tumor in the pelvis is an ectopic gestation." Of the many debts we owe the great abdominal surgeon, his scheme of classification of the varieties of extra-uterine pregnancy will not be reckoned among the least as the years roll by and carry with them the smoke of battle. That, likewise, to his genius are we indebted for the reducing from confusion to simplicity the varieties of pelvic hæmatocele resulting from ruptured tubal pregnancy.

"That according to the implantation of the placenta within the tube, will be the direction of the rupture; that if this occur within the free circumference of the tube, we will have intra-peritoneal hæmatocele, which of necessity is fatal, unless there be prompt surgical help. But that if the rupture occur within that fourth of the Fallopian tube which corresponds to the folds of the peritoneum called the broad ligament, then the blood and foetus escape

into the folds of the ligament, and in this latter case the bleeding may be restrained by the compressive power of the adhering folds of the ligament, and not be fatal."

This latter is his "extra-peritoneal hematocele." The divisions of the time of rupture "into primary and secondary" are also of incalculable value as aids to clearness of thought upon this important subject. With all respect to the masterly *critique* of the Jenks prize essay, in the June number of the *American Journal of the Medical Sciences*, we must concede that Strahan has pretty carefully worked out the diagnosis *after* rupture, as well as the differential diagnosis. Each differentiability, however, has its special pitfalls, and the absence of failures in the future will greatly depend upon the dexterity with which the examiner practises the bimanual method, and at the same time keeps well in mind the advice "never to depend upon any one *single* mode of diagnosis."

After the diagnosis *has been made*, what the treatment shall be is *the* question of the day. The Americans have the credit abroad of having largely committed themselves to electricity *before* rupture and the use of abdominal *section after* rupture, although some physicians and a few surgeons still lean toward conservative measures, even after rupture.

Injections into the sac of poisonous material is a hazardous proceeding, notwithstanding the fact that Winckel claims to have "saved five out of seven cases by injection of morphine into the tumor."

Puncture of the sac and withdrawal of the amniotic liquid does not always kill the foetus, and has not the recommendation of perfect safety. Strahan tells us—too truthfully, perhaps—"that people without the skill or courage to do an operation will have the audacity to plunge a trocar in anywhere, because it is not usually attended with immediately fatal results." Why a surgeon of the present day should prefer cutting into the sac from the vagina rather than perform an abdominal section has not been satisfactorily explained.

"The killing of the foetus by 'electrolytic action' has the most to recommend it, if to *kill* the foetus ended the matter." The point has been well taken that to *kill* the foetus does not save the woman from the many dangers that encompass her; that the killing of the foetus may cause rupture of the tube sooner than it otherwise would, and early ruptures have not proved less perilous than those

at a later date." The "galvano-puncture," as a branch of the electrical treatment, "is as capable of killing the mother as the child," so that its continual use must be of short duration.

That abdominal section saves the greatest number of lives we have constantly increasing evidence. That the *duty* is daily becoming more apparent that physicians generally must familiarize themselves with the details of the operation, so that when the necessity for the performance of it shall arise (in the absence of exceptional surgical skill) it shall not find them false to their trust; for the time is not far distant when every other known method of treatment for extra-uterine pregnancy as soon as recognized will be discarded, except the surgical.

Very recently two cases of ectopic gestation were operated upon at the Woman's Hospital, of Philadelphia. The first case was of unusual interest because it demonstrated so well some of Tait's aphorisms.

The patient was a German, aged twenty-nine, mother of four children, youngest five years of age. On admission she had temperature 99.5° F., pulse 100, with a dark bloody vaginal discharge, which had existed with short intermission for three months.

The early history was that of a three months suppression of menses, followed by a severe attack of pain and expulsion of a "long, flat piece of flesh." After a week's interval the pains recurred with syncope and vomiting, abdomen became distended and sensitive, high fever, and was confined to bed three weeks. Two weeks later the paroxysm returned with fresh vaginal discharge. She then sought admission to the hospital. By palpation an abdominal tumor was found, reaching to within three fingers' breadth of the umbilicus. By vaginal examination the uterus was found imbedded in this mass. Extreme tenderness existed. Upon examination under ether, the tumor was found to be cystic, situated in the left side of the pelvic cavity, with the uterus pushed to the right and the cavity measuring three inches. Exploratory incision was advised. This proposition was not accepted. A year later the patient returned to the hospital, having suffered much from general ill health, and great pelvic distress, being unable to stand or walk without great discomfort and pain.

Examination showed the mass to be more resistant and apparently more closely attached to the uterus.

July 11, 1888, Dr. Broomall made exploratory incision two inches in length in median line of abdomen below umbilicus. In dissection of the abdominal wall, a thickened mass of connective tissue was found below the muscular layer, but no peritoneum was reached. The reason for this was apparent, when the doctor, after carefully separating the connective tissue, came down upon a dark bluish-red mass, which was the tumor itself. The rupture had

occurred at the lower border of the Fallopian tube, and the ovum had escaped between the layers of the broad ligament. Further development of the mass had caused the uterus, with its appendages, to be pushed upward; the parietal peritoneum had likewise been pushed upward, and escaped at the time of incision. An exploring needle was used to discover the contents of the cyst and a few drops of bloody fluid obtained; further examination by the finger caused rupture of the cyst wall and the appreciation of placental tissue. Carrying the finger through the rent, the operator drew from the cystic cavity an embryo of three months' development; she also removed all placental tissue. Any tendency to hemorrhage was readily controlled by irrigation of the cyst cavity with a hot bichloride solution, 1 to 8000. Before closing abdominal wound the edges of the cyst wall were stitched to the edges of the abdominal wound, and a drainage-tube introduced into the cavity of cyst. There was temporary rise of temperature on the second day (temperature 100.5° F., pulse 110), then vomited green matter and complained of abdominal pain. The saline treatment for peritonitis was instituted, with rectal injections of turpentine. In a few hours she was relieved by a free movement of the bowels and the passage of considerable flatus, after which symptoms abated. Drainage-tube was removed forty-seven hours after its introduction, and the patient went on to an uninterrupted convalescence, and was discharged six weeks after the operation in perfect health.

CÆSAREAN SECTION.—An exhaustive paper by Dr. Busey appeared in the January number of the *American Journal of Obstetrics*, upon the question of "Craniotomy upon the Living Fœtus." That a necessity for these arguments should seem to exist at this stage of our obstetrical advance, is more than strange.

Fully ten years ago the teaching from the chair of Obstetrics in the Woman's Medical College of Pennsylvania was, emphatically, that "craniotomy is *not justifiable* upon the *living* fœtus." Since that date, the improved method of performing the Cæsarean operation, the perfecting of aseptic surgery, the frequency with which the abdominal cavity is entered, all unite to render this capital operation less hazardous, as well as materially to reduce the number of craniotomies, which, notwithstanding the showing of the mortality tables in favor of the *mother*, is a horrible procedure and a relic of semi-civilized obstetrics.

I do not wish to be understood as flippantly regarding the Cæsarean operation as one of "election," or that the performance of it may be lightly entered upon. Neither professional curiosity nor professional ambition should influence the surgeon in deciding upon the performance of any of the major operations. I do not hesitate to predict that when a routine system of pelvimetry shall

have come to be practised, that the same will thoroughly revolutionize the *operative* department of obstetrical practice, as well as to increase materially the percentage of recoveries after the grave operations.

And that in a large number of cases, where either the "absolute" or "relative" indications are *present* for Cæsarean section, if the patient be seen in time, the induction of premature labor will be substituted for the major operation.

The large mortality attending the Cæsarean operation in the United States and Great Britain, must be due more to the *lateness* of the operation, than to the want of surgical skill.

That as a prophylactic against the capital operation, as well as, a means of securing complete control of that period in the pregnancy best fitted for safe interference, women should be instructed to place themselves under medical surveillance as soon as a reasonable suspicion of such condition exists. And that it shall be the first duty of the obstetrician to acquaint himself thoroughly with the *form* and *size* of the pelvis, and that he shall continue to possess himself further of all other such information during the pregnancy as shall conduce to the safety of both mother and child.

Many women will consent to the induction of premature labor, after foetal viability, that would not listen to a proposition of Cæsarean section until after the experiment of a dangerous and prolonged labor had first been tried, thus increasing the dangers of the major operation to the mother and risking too much for the child.

Philadelphia has had an unusual number of successful Cæsarean sections within the year. The success of these operations was no doubt due to the fact of their early performance, and to Dr. Robert P. Harris, of that city, belongs the honor of years ago, recognizing and insisting upon the importance of the early performance of this operation when the necessity for it was found to exist.

For in no class of cases better than this, applies Lusk's immortal saying, "The resources of surgery are seldom successful when practised upon the dying."

In 1888 there were 53 Säger cases—11 of which with 7 deaths were in the United States.

Wyder gives as results of 215 craniotomies performed at Berlin, Halle, and Leipsic, a mortality of 5.6 per cent for the mother.

Of cases of induced premature labor, 360, with a mortality of

3.9 per cent. To make these tables of *real* value in comparing Cæsarean section and induced premature labor the foetal mortality should accompany them.

Strauch (Moscow) gives, of a series of 28 cases of induced premature labor, the maternal mortality zero, foetal 55 per cent.

On the other hand, he presents as the results of the Cæsarean operation, maternal mortality 11.8, foetal 8 per cent. And in consequence of the great foetal mortality, in cases of induced labor, declares himself for the conservative Cæsarean operation.

Since the perfection and introduction of the *couveuse* the foetal mortality need no longer remain at the above depressing figures. For to the maintenance of a uniform and continuous high temperature, for feeble and premature infants, is due the great success attending the use of the unique and interesting apparatus.

This novel apparatus consists of a box $43\frac{1}{3}$ centimetres long, $36\frac{2}{3}$ centimetres high, and 24 centimetres wide, with two compartments. The upper one is shorter than the lower and this space between the two end walls is occupied by two or three sponges upon a rod, which communicates with the floor of the lower compartment.

The upper and shorter compartment holds the baby. The lower one contains the jars for the hot water, of which there are five. At the end of the lower compartment, and furthest from the space occupied by the sponges, is a register which can be opened and closed at will. The lid of the box has a chimney in which a helix rests upon a pivot.

When in use the air enters by the register, passes over the hot jars, and as it rises is properly moistened by the sponges and passes out by the chimney. The motion of the wheel stationed here shows whether the circulation of air is perfect within the *couveuse*.

A thermometer is hung within the upper compartment that the temperature may be recorded. The lid of the box is glass and through this observations may be made of the condition of the occupant. The temperature is kept at about 95° F. One of the bottles is filled every hour, or at most every second hour in order that the temperature be kept even.

An improved *couveuse* has since been devised by Auard in which the filling of the bottles is done away and a metal reservoir substituted.

The results at the Woman's Hospital since the importation of the couveuse have been highly gratifying.

The first occupant was born ten weeks before full term and weighed at birth 1760 grammes. She was immediately placed in the incubator, which was maintained at a temperature of 90° F. She was fed hourly upon a drachm of breast-milk, which amount was gradually increased. She was removed on the forty-sixth day, being in perfect health and weighing 2610 grammes.

The second tenant was also born ten weeks before full term. Weight at birth 1710 grammes, length 42 centimetres. He was very feeble, covered with lanugo, ears close to his head, face deeply cyanotic, the blueness not disappearing for some days. Artificial respiration was resorted to, oil baths given, well rubbed and placed in incubator. The oil baths were continued daily. The first eight days he lost in weight, after which date he gained steadily. He was incarcerated for thirty-five days at a temperature of 90° F. After his removal from the couveuse he was kept in a very warm room. His weight on being taken from the incubator was 1790 grammes. Discharged from hospital on forty-seventh day, weight 2065 grammes, a well-conditioned baby.

The present denizen is the Cæsarean baby, which is of scarcely less interest than the mother. He weighed at birth 2450 grammes. Artificial respiration had to be kept up for some time after extraction. He is twenty-three days old and in good health. The mother is twenty-seven years of age, height fifty-eight inches.

Pelvic Measurements.

External conjugate	. . . . .	19 centimetres.
Conjugata vera	. . . . .	8 “
Spina ilii	. . . . .	24½ “
Crista ilii	. . . . .	26 “

The number of previous pregnancies, seven. First four went to full term and were stillborn. The first was a breech presentation, delivered by instruments. The other three were craniotomies.

The fifth, sixth, and seventh pregnancies terminated at five, seven, and six months, due probably to heavy lifting, her occupation being that of a laundress. This case has not before been reported, and by the courtesy of Dr. Broomall I am permitted to do so.

On May 11th, 10 P. M., patient was found having vigorous uterine contractions every ten minutes, presenting part high and very movable. Os penetrable by two fingers. At 1.30 A. M., patient etherized. At 1.55 Dr. Anna E. Broomall made the abdominal incision in median line from the umbilicus to within three fingers' breadth of symphysis pubis.

At 2 A.M. peritoneum lifted and incised. Three deep stitches of silk were introduced at the upper angle of the wound and held by an assistant (to prevent escape of intestines).

2.10. Incision five inches in length was in the median line of the anterior

surface of the uterus, cutting through the placenta. (Escape of amniotic liquid.)

2.11. Child was seized by anterior thigh and extracted. (Presentation footling.)

2.12. Uterus was turned out of the abdominal wound; elastic ligature thrown round cervix to control bleeding; rubber gauze was slipped behind and beneath the uterus to prevent escape of blood into abdominal cavity. Placenta and decidua removed through the wound.

2.18. Uterus washed out with hot bichloride solution, strength 1 to 5000, and hypodermic injection of ergotine into thigh.

2.21. Nine stitches introduced to close the uterine wound, after the Säger method.

2.25. Another ergotine injection. Flannels wrung out of hot water were applied to the abdomen.

2.30. Fourteen silk stitches introduced to close peritoneal surfaces. After sponging out uterine cavity, it was again washed out with hot water and iodoform applied to the entire interior.

2.40. All stitches tightened; 3 A. M., pulse 95, uterus replaced in the abdominal cavity. The early stitches applied at upper angle tightened. Abdomen sponged out—deep stitches of silk introduced to close abdominal wound, nineteen in number, with superficial stitches.

8.20. Wound entirely closed, dusted with iodoform, antiseptic dressing applied. Glass drainage-tube introduced through the vagina, into the uterus. Patient placed in bed. Pulse 95, temperature 99° F. Mother convalescent, child thriving.

Of the periodical literature of the day bearing upon the Cæsa-rean operation, the classical paper by Gustav Zinké upon the Säger method, as well as the report of the discussion, before the Cincinnati Academy of Medicine, upon the question "Shall the relative indications for the Cæsarean operation be extended?" are deserving of permanent preservation.

ECLAMPSIA.—The relation which albuminuria bears to puer-peral convulsions is still obscure. The pathology most in accordance with recent observation is, that the poisoning of the nerve centres is due to retention of excretive material or through a failure of renal secretion. That we may have in uric acid a material provocative of more mischief to the economy, though relatively less in quantity, than urea, is suggestive of the importance of further research in this direction. And that even toxic effects may be concealed in the products classified as "excretive and coloring matters," than in either uric acid or urea. That the excretion of these matters may fail with that of urea-production or failure of excretion by the kidneys.

Again, decomposition of urea manifests itself, sometimes before the eclamptic seizure, as evidenced by the ammoniacal breath, showing that it is more important to note the absence of urea in the urine, than the presence of albumin.

The treatment of eclampsia by the injection of bromide of potassium and chloral hydrate, with abstraction of blood, by leeches, over the mastoid processes, has been urged as securing better results than by the older method of general bleeding, chloroform, and arterial sedatives.

The induction of premature labor under antiseptic precautions, in marked cases of albuminuria, has been proposed and acted upon as the means of securing safety to the mother always, and to the child occasionally.

Charles Jewet strongly recommends the use of hypodermic injections of *veratrum viride*—in doses from ten to twenty minims. The smaller dose repeated in half an hour is usually sufficient. He claims that in no case did convulsions occur after the effects of the drug had been produced, as evidenced by a pulse of 60. After once reduced, it can be kept so with five-minim doses, given as required.

Dr. Jewet reports twenty-two cases in confirmation of his views. In no case did any deleterious effects follow the use of the drug.

ANTIPYRINE.—No important additions have been made to the list of remedies that have the power to mitigate the pains of labor. Antipyrine has been under observation and promises to be of some service in this direction. M. Chouppe has shown that “it tends to relieve the pain produced by uterine contractions which are caused by ergot without diminishing the contractions.”

He believes that it acts upon the spinal cord and may be administered with advantage, during parturition, to women of irritable temperament.

It has proved very satisfactory in diminishing temperature in puerperal conditions without otherwise affecting the course of the disease.

Prof. Cash, of Aberdeen, has furnished some interesting data, both upon antipyrine and antifebrin. By the simultaneous use of atropine he excludes the action of these drugs upon the skin. He concludes that the action of the drug is upon the “seat of heat-production” rather than with the phenomenon of the discharge, for the reason that he had a decided fall of temperature without

sweating or any augmentation of the urinary secretions. He observes that a much less dose is required to reduce temperature in disease than in health. That antifebrin is slower in its action and more permanent. The pulse is strengthened, there is no malaise, but a feeling of well-being exists. If large doses are given, the number of red corpuscles is reduced, but the anæmia thus produced is very amenable to treatment. That its steadier and more continuous action, with its comparative freedom from danger of producing collapse, are its advantages over antipyrine.

The observations made at the Maternity Hospital, New York, confirm somewhat the power of the drug to hasten labor and reduce suffering. One-third of the dilatation was completed before the administration of the first dose, except in cases where the pains were unusually severe. The dose was fifteen grains with thirty minims of spts. amm. aromat. every two hours until labor was completed. Pulse and temperature were noted at the administration of the first dose and hourly after. Temperature was reduced 1° to 1.5° F. Pulse less frequent, respirations slightly increased.

In almost every instance the patient professed relief from pain, which was also apparent from the behavior. In some cases there was an hour or two of sleep.

These observations are the more important because the class of patients delivered were of many nationalities, and of varied social conditions. Many of them had been conspicuous for their restlessness and demonstrative conduct. In 13 cases of labor, primiparæ, with the use of antipyrine, length of first stage, twelve hours and thirteen minutes; 13 cases without, twelve hours and forty-three minutes. Second stage, *with* antipyrine, one hour and thirty-four minutes; *without*, one hour and fifty-three minutes.

From the foregoing observations the average duration of first stage was reduced half an hour. Second stage practically the same. That in no case was any injury done to mother or child. That the pains were very materially lessened in severity without increasing the duration of labor. That the drug in no case gave rise to any alarming symptoms. This may be due to the fact that it was always administered with a stimulant; and further, that there is always in labor a physiological stimulation of the heart's action.

It is counter-indicated in cases where the urinary secretion is diminished or where free diuresis is necessary, as it, of itself, diminishes the secretion of urine.

In a case where eight grammes a day were administered, the amount of urine in twenty-four hours was reduced from twenty-eight litres to five by the antipyrine. In conditions requiring activity of the kidneys as emunctories it has the power to increase or produce toxæmia by cutting off an important means of elimination of waste products. So that the lesson of caution in the use of new drugs, the counter-indications of which are not well understood, should be ever present with us.

PILOCARPINE.—From some studies upon the use of this drug the following conclusions were arrived at: "That it is in no way reliable as an ecboic; that those cases in which there is tendency to premature termination of pregnancy are the most suitable for its administration; that during the dilating and expulsive stage it is equally productive of increase and intensification of labor pain with ergot, with none of its ill effects; cases of inertia are most suitable for its administration; it is useless in post-partum hemorrhages."

It is not a safe remedy in eclampsia if coma is pronounced, on the ground of the dangerous liability of the bronchial tubes filling with secretion. Patients who have escaped the perils of eclamptic seizures have still the dangers of pulmonary complications, resulting from congestion of the lungs during the convulsions, to threaten them, and "these complications are further increased by the use of pilocarpine."

From researches by Dr. Phillips and others we may conclude that the claim that "the use of pilocarpine may supersede the forceps" is more fanciful than practical, and "that the obstetrical bag can do well without it."

CEPHALOMETRY.—An interesting addition to the subject of cephalometry has come from Frascani, of Milan. From a series of observations he claims that the head of the male child at birth is not proportionally larger than the female, but that the pelves of the latter are larger, both in the diameter and circumference.

The Medical News, in editorial comment, says: "If Frascani be right, these measurements prove that there is no difference, so far as the original brain endowment is concerned, in the sexes, but that nature begins in intra-uterine life the preparation of the female pelvis for childbearing." Dr. Aubrey Davis, late Resident Physician to the Philadelphia Hospital, submits additional testimony upon the same point. In a series of forty cases, twenty of each sex, the foetal measurements were accurately taken with the pelvimeter imme-

diately after birth, and substantiate Frascani's observations. "There was but a fraction of a centimetre in a *few* of the head measurements in favor of the male, but a considerable difference in the pelvic measurements in favor of the female."

This subject offers an opportunity for further interesting observations, and suggests to American observers, especially, the importance of readjusting and possibly of correcting not only the cranial measurements, but the deductions that have so long been drawn from the older tables of measurements.

A new application has been found for the apparatus used by Bergeon and others for the cure of phthisis. The French claim that by means of this apparatus the "uncontrollable vomiting" of pregnancy can speedily be relieved by injecting, per rectum, carbonic acid gas.

Even so unattractive a method as this *may* commend itself as a forlorn hope (after all other means have failed) to those of us who shall in the future again encounter misery so profound as that which accompanies the severe forms of the vomiting of pregnancy.

As a preventive measure, in cases of recent laceration of the cervix, a suggestion worthy of attention has been made by Dr. Boldt, of New York, as a means of preventing a later trachelorrhaphy. Its simplicity recommends it. At the end of the sixth week after confinement he scrapes with a narrow knife the torn edges of the cervix and brings them together with catgut sutures. He claims that at that time after delivery the tissues may be, without any cutting at all, restored to their original condition and prompt union secured. But not every woman in private practice without symptoms demanding the enforced recumbency will consent to so early a return to it. And failing thus, if we have painted too graphically the future dangers and discomforts to be thereby avoided, we run the risk of inducing too great self-distrust and of exciting a nervous attention to *small* discomforts, which are among the great factors in the production of invalid women.

The successful treatment of hydramnios remains among our incompleted duties. So long as the source of the amniotic fluid continues unknown we shall remain powerless to influence the excessive production of it, when it occurs. Several such cases have been reported lately.

Whether septic peritonitis will come to be generally accepted as an indication for laparotomy, I am unable to say.

The subject of pregnancy and parturition complicated with heart disease is of itself of sufficient importance to detain us the entire session. At least two exhaustive papers have appeared upon the subject during the year, each showing that much can be done to ameliorate distressing symptoms, and that subsequent pregnancies are to be entirely discountenanced.

I shall mention curetting of the endometrium after labor at term with the hope of hearing it condemned. The reported cases in which "handfuls of degenerated débris" have been removed some days after labor from the interior of the uterus by the curette point significantly to the mismanagement of the third stage and the earlier period of the puerperium. Even the advocates of the dull curette for this purpose admit that high grades of endometritis are exceptional after skilfully conducted cases of labor." The signs of the times seem to indicate that the "axis-traction" forceps are growing in professional favor. The day will probably arrive when no other forceps will be applied at the brim. Professor Stephenson, of Aberdeen, contributes an additional pair this year. The devising of new instruments often arises more from a gift of mechanical ingenuity than any real need in the character of the work for improved implements. Dexterity does not come from frequent change of instruments. It takes time to become acquainted with new ones. The simpler an instrument, the better, always. These strictures do not bear upon the *glass* catheter; for, of the many new things, the cleanly little glass catheter originated by Dr. Howard Kelly is the tidiest, and makes us wonder that nobody thought of it before. But, as preventive medicine becomes more and more the practice of the day, I hope less and less use will be made of both catheters and curettes.

"The removal of both ovaries during pregnancy without interfering with its full completion has demonstrated satisfactorily that the operation does not, of necessity, shorten the term of gestation, nor deleteriously influence the character of the labor." It further has illustrated the fact that the ovaries do *not* direct the contraction of the uterus. That the mother upon whom the operation was performed was able to nurse the child would also seem to disprove the theory that lactation is a substitute for menstruation.

As to the probable causation of menstruation, the *removal* of a small plexus of nerves in the angle formed by the Fallopian tubes and the uterus has been proposed as the cause of the cessation after

entire removal of the appendages, rather than because of the extirpation of the ovaries and tubes.

The value of the Alexander operation has been illustrated by a report of three hundred cases by different operators with very satisfactory results.

The discussion of some of the twenty-one methods of delivering the after-coming head, collected by Winckel, Berry Hart's paper on the "Improved Method of Managing the Third Stage of Labor," are all of more than ordinary interest. Even the speculations upon the head-downward presentation and the first cranial position have their interest for minds theoretically inclined.

And, finally, as the outermost limit of my review is reached, my sins of omission rise before me, and remind me that numberless other papers, discussions, operations, and original investigations should have received honorable mention. But to tell the story of the year's work acceptably would require more than thirty minutes for the telling, even in the hands of an adept at condensation. But other years will come to the Society, and for that which has lasting merit a year's waiting is of little moment.

For the extracts contained in the preceding paper I am indebted to the following sources :

American Journal of Obstetrics.
British Gynæcological and Obstetrical Journal,
London Lancet,
University Medical Magazine,
New York Medical Times,
Medical News,
Monographs by authors whose names are mentioned, and private letters.

ADDRESS IN MENTAL DISORDERS.

BY ALICE BENNETT, M.D., PH.D.
OF NORRISTOWN.

INSANITY AS A SYMPTOM OF "BRIGHT'S DISEASE."

I have wished, if possible, to make this half hour, during which I have the honor to address you, of some interest, more especially to the general practitioners of medicine, who make up the great bulk of the Society. To that end I have determined to ask your attention, not to a review of the year's work in the department which I represent, a custom which has come to be "honored in the breach" quite as often as in the observance, but to a field where the labors of the specialist and of the general practitioner meet in close relation, and where the observations upon either hand have been few and incomplete. My subject is Insanity as a Symptom of the so-called Bright's Disease, or Diseases, a name which, unsatisfactory as it has become, we are yet not prepared to throw away.

The growth of our knowledge has hitherto been hindered by the too sharply drawn line which has divided the doctors who study the diseases of the body, on the one hand, from those who are studying the diseases of the mind, upon the other. The general practitioner has been too apt to stand aloof and gaze upon the spectacle of the "human mind diseased" as a something outside his ken, under the influence of forces new and strange—as "outstanding exceptions of humanity, unintelligible except on psychological hypotheses"—to which he supposes the alienist to possess some key all his own; while, on the other hand, the "insane doctors" have been so much absorbed in following and classifying the bewildering windings of the disordered mind that they have too often forgotten the body.

But I take it as a cheering sign when, from the ranks of the alienists themselves, come words like these:¹

¹ John Battey Take, *Nineteenth Century*, June, 1889.

“The psychological theory of insanity has prevented advance in the study of those forms of disease of which mental alienation is the most prominent, but by no means the sole, or even the most important, symptom. Blinded by this glamour of psychology, we have lost nearly a century of observation, and have frittered away the lives of hundreds of good men.”

Let me repeat here, also, the words of the member who last occupied this chair :¹ “If there be one thought in this connection which ought never to be forgotten, it is that *the human mind diseased is the human mind still*. The coming on of insanity marks *not* the appearance of a *new* entity or a *new* force. *Our so-called mental diseases are simply groups of symptoms.*”

This is the fundamental thought which I want to emphasize. Insanity is a symptom, or group of symptoms ; not always, not in the majority of cases, at least in its beginnings, a symptom of integral disease of the organ whose perverted action it is, but of faulty conditions external to it. Whatever the initial step leading to disordered brain action (I am speaking now of “ordinary insanity” in the sense used by Sankey, excluding that which is organic or developmental), the remote effects are similar ; whether beginning as mania or melancholia, it ends sooner or later (*i. e.*, if the morbid process be not checked), in dementia, that is, the limited function of a more or less impaired brain tissue. To the general practitioner alone, in the great majority of cases, comes the opportunity to study insanity in its inception, and to investigate the perverted bodily functions which determine the nutritive changes leading to disordered brain action, when only preventive measures may often be attended with gratifying results.

When we consider the marvellously delicate structure of the brain, whose susceptibility to every impression is, in fact, its function, is it not self-evident that any defect in the nutritive processes upon which its integrity depends, any deterioration in the quality of the blood or in the manner of its supply, will be liable to influence its action ? And this, by a majority of the writers on mental diseases, is conceded in theory, if denied in practice.

Schroeder von der Kolk says :² “Among the causative forces acting on the brain, the first place must be given to the blood.”

¹ Dr. H. C. Wood, 1888.

² The Pathology and Therapeutics of Mental Diseases.

Blandford says :¹ " Could we comprehend the blood supply of the brain, beyond all manner of dispute, we should go far toward explaining most of the phenomena of brain function and of brain disorder." And again : " The life and functions of the highest cerebral centres are disordered by interruption in their natural nutrition ; if there is a defect—an impoverished blood, or a blood poisoned by deleterious ingredients, the effects must be visible in the functions of the brain."

This is logic and common sense ; it is also physiology, and it is difficult to follow this author when, in his chapter on pathology, he reviews the organs most concerned in a pure and equable blood supply, as follows : "*Hearts* are frequently morbid, but we are not to connect these with the outbreak of insanity." " In the pathology of commencing insanity the *kidneys* play a very unimportant part." " I believe the *liver* has little to do with the pathological condition of a patient who has recently become insane," etc. Griesinger says : " Many cases that terminate fatally in the acute stage present pretty much the appearance of the normal brain ; often enough to lead to the conclusion that the symptoms during life were due to some disturbance in the process of nutrition as yet unknown to science." Sankey² separates what he calls " ordinary insanity " from paresis, epilepsy, organic and developmental insanity. Speaking of the etiology of " ordinary insanity," he says : " The disease consists in a morbid state of the blood, or of the processes concerned in nutrition."

His *résumé* of the morbid anatomy in insanity is at once so comprehensive and so concise, and bears so directly upon our subject, that I make no apology for quoting it : " During the earlier period of the disease (Sankey regards mania and melancholia as only differing manifestations of one morbid process), the symptoms are due to an alteration in the blood, in its quality and in its amount ; there is some congestion with interstitial deposit of serum and of protein compounds ; then atrophy of the brain substance and hypertrophy of the vessels. At first the symptoms are due to the circulation of impure blood ; they next are due to excessive supply ; then they evidence the imperfect function of an altered cerebral tissue."

Coulston says of melancholia : " It is a constitutional disorder

¹ Insanity and its Treatment. Edinburgh, 1884.

² Lectures on Mental Disease. London, 1884.

of the brain developed out of hereditary tendency and excited into action by peripheral disease in some other part of the body." Accepting then the self-evident fact, which, moreover, has the support of the high authorities named, that "ordinary insanity" in its first stage depends upon some defect in the quality, or the mode of supply, or both, of the blood, we can hope to get some light upon the causes of insanity only by studying the organs which have to do with blood production, purification and supply. In this vast field, where so many avenues of inquiry open, I shall attempt no more than to make some suggestions along one path in which my own clinical experience has happened to lead me.

It is understood, of course, that no organ, or system of organs, acts independently; that there can be no absolute separation of the study of one from the study of another—as, for example, the liver, kidneys and heart, often related links in one morbid process—nevertheless each has its definite function, interference with which is followed by equally definite consequences.

By "Bright's disease" we no longer understand a morbid process affecting the kidneys only, but whether we consent to accept the kidney lesion as a part of a general "arterio-capillary-fibrosis" (after Gull and Sutton), or with Dr. A. V. Meigs, look upon it as a localized expression of a general "endarteritis," the fact is undisputed that at some stage in the train of morbid processes, covered by the monumental name "Bright's disease," lesions of the kidney do exist; their function is interfered with; to a greater or less extent they fail to separate certain waste products from the blood, which being retained and circulated through the body produce toxic effects which we have been accustomed to group under the general term "uræmia," or "uræmic poisoning."

I must pass by, as not essential to my purpose, any consideration of the various theories concerning the nature of these nitrogenous waste products, and confine myself to some observations upon their effects, which my experience has led me to believe are more varied and far-reaching than has generally been supposed.

There has been a general impression abroad that diseases of the kidney are not common among the insane, founded upon statements to that effect in most of the text-books and perpetuated by the very general absence of systematic and careful observations in this direction. Griesinger, in his work on Insanity, says: "Anomalies in the urinary secretion may be much more frequent," *i. e.*,

among the insane, "than is generally supposed. Unfortunately any reliable researches upon this important subject are still wanting."

My attention was first arrested by the clinical observation of the very constant coincidence of some form of mental pain or distress, *i. e.*, melancholia, with the physical signs in the urine of disturbed kidney action; this is not invariable, but the rule. We have cases of undoubted mania associated with a uræmic condition and, on the other hand, cases of melancholia without it; as for example, in some conditions of grave heart lesions with general debility, and some transitory cases associated with disturbed liver action with the uric-acid formation.

[A. Haig, in an article in the *London Practitioner*, vol. xli., No. 5, on "Mental Depression and the Excretion of Uric Acid," speaks of the demoralizing influence of uric acid upon the nerve centres and explains the well-known fact, that states of mental depression are intensified in the morning, by the increased alkalinity of the blood at that time, and consequent greater solubility of uric acid. We know that our melancholic patients are worse and that suicidal impulses are to be specially guarded against in the early morning.]

Briefly formulated, my experience has led me to believe:

1. That, contrary to generally received opinion, affections of the kidney are very common among the insane.

2. That "uræmic poisoning" is one of the most frequent causes of insanity.

3. That while the mental manifestations may be as varied as there are different centres subjected to irritation by these unknown poisons, the most prominent and constant symptom is some form of *mental pain*, which may range from simple depression, through all degrees and varieties of delusions of persecution, self-condemnation and apprehension, with or without hallucinations, up to a condition characterized by a frenzy of fear, with extraordinary motor excitement, and rapid physical prostration, the "grave-delirium" or "typho-mania" of some authors.

4. That the motor centres are specially liable to affection, as evidenced by the restlessness and incessant activity of many cases, less frequently by convulsions and convulsive twitchings; occasionally by choreic movements; occasionally by cataleptoidal states.

Undoubtedly there is much more of "Bright's disease" in the community than appears on any record book, the interstitial form often running a very long course, frequently unrecognized. Per-

sons subject to "bilious attacks" and "sick-headaches;" to obscure neuralgias; to crawling sensations (often described to me "like the flowing of water" over the part affected) in the head and especially in the back of the neck; people who are "tired all the time," who have sleepless nights, or occasional night-terrors; who have unexplained attacks of sudden weakness, or periods of low spirits without cause; who show an unnatural irritability, or a gradual change of character or disposition; those who are subject to gout, rheumatism, chorea, skin eruptions, to itchings of the surface of the body, either local or general—all these may well be suspected of dangerous tendencies.

I need not say that numberless cases of slow kidney trouble live long and fairly comfortable lives without showing any mental disturbance, and that many others run a rapid course to death without such complication. We must assume, in some cases, a toxic impression of overwhelming power, but, doubtless, some brains are predisposed, by inheritance or otherwise, to an easy overthrow of the mental balance. This seemed plain in many of my cases. In such a one, given a chronic nephritis, or even without it, insanity may be induced by anything that increases the burden thrown upon the kidney, diminishes its working-force, or interferes with other excretions. Such causes are: improper diet; long-continued constipation; sudden exposure to cold; pregnancy, or any unusual interference with the circulation; overwork of body or mind and especially worry; intercurrent disease, or anything that depresses the system and lessens its power of resistance. The influenza epidemic in the beginning of the present year sent us a number of cases of melancholia which belong in this category. (See Cases LVI., LVII. and LIX.) A factor which cannot be left out of account in these cases, is the heart; whether a coincident or resultant change, we know that, with diseased kidneys, we are apt to have abnormal hearts, and it is an interesting question, to what degree mental disturbance may be aided by some modification in the supply of blood to the brain, due to normal heart action.¹

Dr. Landon Carter Gray, of New York, read a very interesting and suggestive paper before the American Neurological Association, in 1889, on "Three Diagnostic Signs of Melancholia," with notes

¹ In the Address in Mental Disorders, for 1884, the writer gave an analysis of 500 cases of insanity, 20 per cent. of which had some heart affection.

of sixteen cases illustrating the *association of mental depression, insomnia, and post-cervical ache*, which he has found so constant in his practice. Dr. Gray says: "The simple forms of melancholia are often extremely difficult to diagnosticate, especially in the early stage, as the reasoning powers, the memory, and the perceptions are then often seemingly unimpaired or not more affected than is possible from a myriad unimportant causes. Patients suffering from this mental disease too frequently figure as neurasthenics to be confidently treated as such, until some determined and frightful suicidal, or homicido-suicidal, attempt throws startling light upon the true nature of the malady. These, too, are the cases of unaccountable suicide which puzzle friends, and competing newspaper reporters account for so satisfactorily and sensationally upon some theory of rejected love or high-flown sentimentalism. Any certain diagnostic symptoms in this class of cases should be, for these reasons, of value. . . . So firmly have I come to rely upon the association of this symptomatic triad" [*i. e.*, mental depression, insomnia, and post-cervical ache], "that I have lately made a diagnosis in two cases by means of it. The first patient was a gentleman who came to me complaining of a distress in the back of the head and neck, which at times was painful. I learned from him that the onset dated back to six years ago, when, as he said, he had been run down and depressed. I then told him that I would outline to him his symptoms at that time, and I proceeded to tell him that he had been very much depressed, had not been able to sleep, had thought of committing suicide, had been slightly confused in mind, and had remained in this condition for several months. He was amazed, and asked me if I was a mind-reader, finally admitting that he had passed through just such an attack of melancholia, which he had concealed from everybody, because he was then living in Burmah in the employ of the English Government, and was afraid that he would lose his position if thought insane."

I fully concur in all that Dr. Gray has so well said in this paper; but, in going a step farther and investigating the *causes* of insomnia and post-cervical ache, both among the most common symptoms of "uræmic" blood-poisoning, we shall find additional aids to diagnosis and safeguards against catastrophes like those mentioned.

In cases of Bright's disease with sudden invasion of melancholia, there is one feature so constant that I have come to regard it as

diagnostic : it is the *sense of impending danger*, the overwhelming *fear* of some threatening calamity, which inspires the one irresistible impulse to "get away" which dominates the individual for the time, and under the influence of which he often jumps out of the nearest window. (See Cases LV., LVIII., XLVII., and others.)

To prevent insanity by recognition and treatment of the conditions leading to it will be our aim ; frequently, however, so insidious is Bright's disease, and so unwilling are people generally to appear to make much of their little ailments, which would be such valuable indicators if revealed, that we know nothing of the state of affairs until some catastrophe has taken place. Even then it is worth much to be able to say why it has occurred, and even in unpromising cases gratifying results sometimes follow prompt treatment in the lines indicated, but prognosis must always be guarded.

I think that I can serve you best by presenting some clinical notes of cases with comments ; but before going on to speak of my own experience, I will ask you to look at the literature of the subject.

Books on diseases of the kidney say almost nothing of the effects of retained nitrogenous waste products upon the nervous system, except convulsions and coma, generally preceding death.

From all the works on insanity accessible to me I have gathered everything bearing on this subject that I could find.

From Bucknill and Tuke :¹ "The kidneys are remarkably free from disease in all forms of insanity. We have met with three cases of Bright's disease among the insane, and we have found the experience of others of a similar nature." They quote, with evident surprise, Howden, who had admitted twelve cases of albuminuria in three years, and who, in 235 post-mortem examinations, had found kidney disease in 86.

They admit two genuine cases of "insanity coexistent with the waxy form of Bright's disease," mentioned by Dr. Wright, in the *Report of the Royal Edinburgh Asylum*, for 1871, and speak also of a similar case recorded by Dr. Wilkes in the *Journal of Mental Science*, for 1869.

In connection with gout, Bucknill and Tuke say : "Outside the walls of asylums cases are frequently met with which are marked by *unfounded dread*, especially on awaking in the morning, in

¹ Psychological Medicine.

which there is a gouty diathesis, and suspicion is aroused that there is a causal relation between the bodily condition and the mental anguish. This suspicion is confirmed by the marked success of treatment founded upon this supposition."

Schroeder v. der Kolk, under "Sympathetic Insanity," records two cases of insanity accompanying vesical catarrh, of which one recovered; in the other an affection of the kidneys supervened, and the patient died."

Sankey found adhesion of the capsule of the kidney in one-half his cases post-mortem, and, "in a large number, other evidences of disease, as atrophy of the cortex, fatty degeneration, waxy disease, etc." This author does not seem to have made any study of the kidneys during life. The presence of kidney changes post-mortem he regards as "evidence that the blood has been impure" (emphasized by him as the first step in the production of "ordinary insanity," as quoted above); nevertheless, he concludes by saying: "I do not consider the true pathology of insanity to have any necessary relation to kidney disease."

Gowers calls attention to organic changes (as apoplexy), which may ensue from atheroma of the arteries in advanced Bright's disease.

Griesinger¹ says: "Bright's disease to which any etiological relation to insanity could be attributed is very rare indeed." One would much like the complete clinical record of a case like his No. 12, of which the following is a condensed abstract: "Delirium occurring in second pregnancy; formication and smarting over whole surface; a general sense of ill-being; sleeplessness; ringing in ears; vertigo; pulse hard; slight cardiac hypertrophy; recovered, and relapsed in the following year."

Or his No. 8: "Man; hepatitis in the beginning; variable temper; pain in lumbar region; burning in urethra and bladder; at times had gravel; died in a few months."

Blandford speaks of a variety of melancholia "usually ascribed to dyspepsia or disorder of the stomach and liver." He has also noticed that "melancholia often comes on, as a precursor of death, at the close of other diseases."

In Clouston's² very interesting work I find more bearing upon

¹ Mental Pathology and Therapeutics.

² Clinical Lectures on Mental Diseases, London, 1883.

this subject than in any other I have read, although I cannot always agree with this author in his interpretation of facts. For example, his two cases of diabetic insanity, which have been extensively quoted in other text-books. In Case No. 2, a man, who died after melancholia of two years' duration, with delusions of persecution, the diagnosis rested entirely upon one examination of the urine made near the close of life; no symptom had led to the suspicion of diabetes, and there was no post-mortem examination.

That some amount of sugar in the urine is frequently associated with chronic Bright's disease is well known; and I have twice met the condition noted in my Case VI., where, shortly before death, sugar appeared in large quantities in the urine, from which it had previously been absent.

His case No. 1 was a "woman, aged fifty-nine; agitated melancholia; toward the end, sleepy all the time; urine never very copious; ordinary treatment of diabetes of no avail."

Clouston recognizes a "variety of mental derangement, half delirium and half mania, which results from uræmic poisoning, which he names the "insanity of Bright's disease." . . . "Usually occurring in chronic cases with contracted kidneys, where there has been enlargement of the heart and a tendency to dropsy for some time," and he gives one illustrative case.

He has also noticed in such cases "mania of a delirious character, with extreme restlessness, with remissions, attended with great prostration" (the equivalent of the "grave delirium" of some authors, of which I shall want to speak again).

I was especially interested in Dr. Clouston's studies of melancholia, which is the one form of insanity I so constantly find associated with defective kidneys. He considers it under eight heads, as follows :

1. Simple melancholia.
2. Hypochondriacal melancholia.
3. Delusional melancholia.
4. Excited or motor melancholia.
5. Resistive melancholia.
6. Epileptiform melancholia.
7. Organic melancholia.
8. Suicidal and homicidal melancholia.

These divisions are convenient, but it is needless to say that (excluding "organic," which seems to me out of place here) they

are descriptive of mental states, rather than varieties of disease; often transitory, passing one into the other in the same case. Etiologically, I would consider them all as one, including also stuporous melancholia, which Clouston considers under the separate general head "stupor." Of the "motor" and "epileptiform" varieties, he remarks that they are "specially liable to skin irritations, itchings, boils," etc.

The treatment that this author has found of most value in melancholia is, to me, significant: milk is his "sheet-anchor;" farinaceous and fatty foods; an abundance of fresh air; baths, and especially Turkish baths, of which he says: "I have seen many chronic, incurable cases of melancholia improved by a course of Turkish baths."

In our own country there have been some special contributions:

In 203 autopsies at the Government Hospital for the Insane, at Washington, D. C., about one-sixth of the kidneys "presented alterations sufficient to constitute disease."

Prof. William Osler reported to the Philadelphia Neurological Society, in 1888, three cases of insanity associated with "Bright's disease:"

CASE I.—Man, aged forty-two, known to be the subject of "Bright's disease;" after three or four days of violent mania, died in a comatose condition.

CASE II.—Man, the subject of interstitial nephritis, admitted to the University Hospital in a semi-stuporous condition; had previously been maniacal, and had delusions of persecution; committed suicide by jumping from an upper window.

CASE III.—A man, with chronic "Bright's disease," who for a time refused food, under the influence of delusions of persecutions; afterward improved.

Dr. L. Bremer, of St. Louis, in a paper read before the State Medical Society of Missouri, in April, 1888, details seven cases that have come under his observation:

CASE I.—Unmarried woman, thirty-eight; rheumatism and chorea at fourteen; albuminuria, following fall into cold water, of four years' duration; a second exposure followed by scanty secretion of urine, insomnia, irritability, mania of two days' duration, followed by melancholia with self-condemnatory delusions; attempted suicide on the ninth day, resulting in excessive hemorrhage, followed by sleep and rapid recovery. The urine contained albumin, hyaline and epithelial casts, pus, and blood corpuscles, disappearing with complete restoration to health.

CASE II.—Man, a drinker; acute rheumatism, with fever, tremors, spastic state of muscles, delirious insanity marked by intense restlessness and vivid hallucinations; urine contained enormous amount of albumin, hyaline and blood casts, which almost disappeared during a remission of three weeks, when mind was clear, and again increased with a relapse which ended in coma and death eight weeks from the inception of the disease. No post-mortem examination.

CASE III.—Woman, forty-eight; injury to head in childhood; puerperal mania at thirty-four; six years later, rheumatism with intense insomnia, preceded a melancholia of several months' duration. Last attack followed prolonged exposure in a railroad accident; active delirium, with menacing hallucinations, coma; death one month from beginning of the attack. Albumin, epithelial and hyaline casts in urine.

CASE IV.—Woman, fifty-five; sciatica for ten years; an exceptionally severe attack, followed by mental confusion, quickly passing into coma and death. Urine contained epithelial and blood casts, and pus corpuscles.

Dr. Bremer's Cases V., VI., and VII. are somewhat complicated, and I pass over them here.

Dr. E. A. Christian, of the East Michigan Asylum, reports¹ 37 out of 2600 cases of insanity admitted to that hospital, "in which the appearance of grave disturbances of nutrition had been coincident with albumin and tube-casts in the urine; in only about a dozen could it be said that the mental manifestations were not dependent upon, or modified to some extent by, the renal disease." Of these cases he makes two divisions: 1, the "uro-toxic;" 2, the "vascular." I give condensed abstracts of his five cases illustrating the first class, which he considers much less common than the second. (In this my experience is widely at variance with Dr. Christian's.)

CASE I.—Woman, thirty-four; convulsions, followed by insanity, at a miscarriage three years before. A second attack, also puerperal, two years later. Third and last attack also puerperal; "grave dyspeptic disorders and failing vision" in interim. Mostly "confused and restless;" a low muttering delirium. Died semi-comatose, in the third month of attack. Urine contained albumin, waxy casts, and debris. No autopsy.

CASE II.—A year of dyspeptic troubles, headaches, frequent vomiting, eczema, etc., was followed, successively, by delusions of suspicion, hallucinations of sight and hearing, low delirium, and, near the close, intense excitability of the motor centres, with spasms of all the voluntary muscles. Albumin, hyaline and granular casts in the urine. Death in four months. No autopsy.

CASE III.—Male, eighty-one; restless and irritable for eighteen months.

¹ Journal of American Medical Association, March, 1889.

Extravagant ideas, followed by delusions of fear, merging into general mental confusion; coma of five days, death. Albumin and casts in the urine.

CASE IV.—Male, forty-five; sequence of symptoms as follows: peculiar and forgetful; confused; hypochondriacal; suspicious; religious delusions. Died, semi-comatose, in four months. No autopsy. Albumin and casts in urine.

CASE V.—Woman, fifty-seven; a fever of some sort, followed by causeless worrying, profound depression, delusions of suspicion, oedema; albumin and casts in urine; asthenic; paroxysmal, asthmatic seizures, with cough; died of pleuritic effusion, more than two years from the beginning of insanity.

While I do not agree with the last-named writer as to the preponderance of the “vascular” over the “uro-toxic” cases, I freely concede the frequency and importance of the former class, among which belong many of our early apoplexies. I want to say, also, in passing, that the relation between paresis and “Bright’s disease” seems to me to require further investigation; we know that many cases of paresis are associated with kidney disease, and I have seen cases, beginning as melancholia with uræmia, pass into a condition similar to, if not identical with, paresis.

The cases which I present are all taken from the records of the Department for Women of the Norristown Hospital for the Insane. They are divided into clinical groups, and are condensed as much as possible.

First group.—Cases (12) rapidly fatal (twelve days to three months). I am persuaded that to this class belong many of the cases variously designated as “typho-mania,” “grave delirium,” etc., by different writers. Nothing more distressing, nothing more hopeless or even amelioration, can come either to the general practitioner or the specialist. Their characteristic features are intense motor excitement, with rapid physical prostration, a condition graphically described by Spitzka, as follows: “Insomnia and inability to think, increased irritability, and a sense of impending misfortune precede the outbreak, which is often so sudden as to suggest the fulminating type of typhus, or of epidemic meningitis. There is wild, aggressive delirium—a panphobia—the patient jumps out of the window, beats the plaster from the walls, eats bedding, and clutches at his attendant with the frenzy of despair; may sing, whistle, yell, and tear off clothing continuously for days. One patient kept plunging his head against the ceiling until beaten to a jelly. Another rubbed his thumb against his teeth until it hung by a thread.” Dr. Spitzka concludes, since “all the patho-

logical changes of the brain noted post-mortem are only collateral results of disturbed circulation, and throw no direct light on the essential pathology of 'grave delirium,' that we must infer the "formation of a toxic agent in the nerve-centres themselves."

CASE I. —, aged forty-two, American, married but deserted by husband; general health said to have been poor during her married life; had been "a little unlike herself" for the preceding five or six months. One week before admission to the hospital became actively insane, with extreme restlessness and increasing bodily depression. On admission showed most intense motor excitement which was almost incessant for one week. This was followed by a week of great physical prostration in bed, ending in death on the fourteenth day, three weeks from the beginning of the attack. At times, during the last week, mind was quite clear. A few days before death a double pneumonia developed which hastened the fatal issue. Urine contained albumin and hyaline casts on admission. Autopsy showed the large mottled kidneys of chronic, diffuse nephritis. Heart flabby, hypertrophied, and dilated. Liver enlarged. Lungs, red hepatization, except at apices.

CASE II. —, aged thirty-two, American, married, mother of three healthy children; paternal uncle insane; showed slight peculiarities for preceding year; apt to complain of "pain across back," but was not considered sick until ten days before admission, when violent insanity developed suddenly, during the night; was kept in bed by mechanical measures, and was brought to the hospital, bound to a stretcher, over a distance of sixty miles. On admission she was in a semi-comatose condition; action of heart extremely feeble; urine loaded with granular and waxy casts and blood-disks. She lived six days in this condition. Autopsy: Heart, organized clots in all cavities; aortic insufficiency. Kidneys normal size, cortex thin and very fatty; one hemorrhagic infarct size of marble. Liver "nutmeg" on section.

CASE III. —, aged twenty-nine, single, of Irish parentage, good family history. Reported good health up to three weeks before admission, when she became melancholy, with the delusion that the neighbors were defaming her character; persistently suicidal. On admission urine contained albumin, hyaline and granular casts; action of heart feeble. Death occurred after thirty-three days (in eighth week of attack), during which she was the subject of intense motor excitement with agonizing apprehensions. Once repeated rapidly for hours, in most piercing screams, "O God! where is my brother?" Fed with tube. No autopsy.

CASE IV. —, aged thirty-nine, of German extraction, wife of intemperate saloon-keeper, patient said to have drank beer in moderation; mother of eight children, three miscarriages during the preceding year said to have been artificially induced; domestic relations unhappy and general health not good for a year. Insanity developed suddenly, three weeks before admission, in the form of melancholia with suicidal and homicidal impulses; asked her friends "to put her in the asylum because she could not trust herself." On admission appeared well and continued sensible, cheerful, and industrious for three weeks; gave a clear history of her attack, and soon evinced a natural desire to go home and take her place in her family. One examination of the

urine at this time gave negative results. Heart enlarged, with mitral systolic murmur. On twenty-second day she became melancholy; quiet, with tendency to stupor, but made several attempts to choke an unoffending fellow-patient; increasing mental dulness with rapid physical wasting for one week. On the eighth and ninth days (of this attack) showed extreme restlessness; would throw herself about the floor, beat the walls, scream, etc.; tenth day in bed; died on morning of eleventh day. A second examination of the urine made during this attack also gave negative results. Autopsy: Venous congestion everywhere marked; heart hypertrophied, with mitral leak; kidneys large, capsule thickened and removed with difficulty from a roughly granular surface; cortex, on section, showed extensive fatty change; liver also showed fatty changes in a few places.

This case is interesting as showing the remission which is so frequently seen in the mental, as in other manifestations of "Bright's disease," and also as illustrating the necessity for repeated examinations of the urine.

CASE V. —, aged thirty-three, Irish, single, domestic, good family and personal history. One week before admission suddenly became wildly delirious; no previous symptoms noted. On admission she was excited, incoherent, and in constant motion of some sort. Urine loaded with granular and waxy casts. Lived nine days; delirium passed into semi-comatose condition for the last two days of life. Autopsy: Kidneys contracted, capsule adherent, cortex thin, cystic, and fatty. Some thickening of heart valves and numerous atheromatous patches in coats of arteries of the brain.

CASE VI. —, Aged twenty-six, American, single; one paternal cousin insane; general health had been considered good, but slight failure of memory and a tendency to repeat words had been noticed for two years. Onset of insanity sudden, twelve days before admission, shown by incessant talking of delusions of a persecutory nature, insomnia, and restlessness. On admission condition as described above; after one week passed into a condition of semi-coma which lasted a month, and she died in the seventh week of the attack. The urine contained a small amount of albumin, hyaline, epithelial, and granular casts. There was a mitral systolic murmur of the heart. Ten days before death the urine contained a considerable amount of sugar, although none had been found at two previous examinations. In the last week showed a tendency to convulsive twitchings of all the voluntary muscles; superficial sores readily followed slight irritations of the skin. Autopsy showed contracted and granular kidneys. Heart hypertrophied, with mitral leak.

CASE VII. —, aged thirty-eight, married, mother of five children. Invasion of insanity sudden, of one week's duration; lived eight days, after admission to the hospital, in a condition of restless delirium with rapid loss of flesh. Autopsy showed kidneys contracted and fatty; heart hypertrophied and dilated.

CASE VIII. —, aged forty-five, of Irish parentage. Dyspepsia for two years, somewhat depressed for four months; melancholia, with restlessness and delusions, for one week before admission to the hospital. Special delu-

sions were that there was "a roaring lion inside" her body; at another time a "man," etc. Continuously restless; died eighteen days from the beginning of the attack. No autopsy. Urine contained albumin; no casts found.

CASE IX. —, aged twenty six, Pennsylvania German, single, domestic; left service six weeks before through ill-health, but there were no mental symptoms until two weeks before admission to the hospital, when she suddenly became deranged, screaming "The people are burning up!" Refused food and lost flesh rapidly. Died six days after admission, three weeks from the onset of mental symptoms. The urine contained albumin and many granular casts. The autopsy showed the kidneys much contracted, cortex granular and cystic.

CASE X. —, aged thirty, American, married, good family history. Had suffered from dyspepsia but was considered fairly well up to eight weeks before admission to the hospital. Insanity characterized by apprehensions of disaster, suicidal attempts, and great restlessness. Lived twenty-five days. No autopsy. Urine contained hyaline and granular casts.

CASE XI. —, aged thirty-seven, American, widow. mother of five children. Had been running down in health for four months with some mental depression, but no obvious insanity until ten days before death, which was probably hastened by the fatigue of the journey to the hospital. She died after two days, during which she manifested great restlessness and mental distress, with apprehensions of injury. The urine contained albumin and granular casts. The autopsy showed kidneys granular and contracted, with a large cicatrix on the posterior surface of the left; heart very pale, flabby; insufficient valves.

CASE XII. —, aged forty-seven, American, widow. Sudden development of insanity; melancholia, with great restlessness, fear, screaming, etc., followed by death in twenty days. Urine contained granular casts. No autopsy. This case was complicated by swelling of both parotid glands a few days before death.

Second group.—Cases (12) less rapidly fatal (three months to nine and one-half years).

CASE XIII. —, aged fifty-nine, married, mother of two children; one maternal cousin insane. Melancholy for about two months before admission, with a remission of about one month during which she seemed well; prominent mental features were delusions concerning her own body, apprehensions of injury and hallucinations of sight; at first very restless but soon became quiet and markedly resistive; never stuporous but seldom spoke; expression watchful, suspicious, and despairing; often required mechanical feeding; at times seemed to suffer great pain, which, on two occasions, appeared to be relieved by the passing of a large quantity of bloody urine. Emaciation was rapid and extreme. The urine contained albumin, hyaline, and epithelial casts. Death occurred in the seventh week of her residence with us, the fifteenth from the beginning of insanity.

CASE XIV. —, aged thirty-two, American, married, mother of one

child eight years old. Melancholy for nine months before admission; died six months later, fifteen from the beginning of insanity. No autopsy.

This case was characterized by extreme melancholy and strong suicidal impulses always active; generally silent with most agonized, despairing expression, but had periods when she would utter piercing screams and throw herself about the floor for hours; often fed with tube because she refused food. There were several slight convulsive seizures just before death.

CASE XV. —, aged fifty, American, widow; no family history of insanity. Something more than a year before admission to the hospital became the subject of restless melancholia, followed by a gradual failure of intellect. On admission, bewildered and frightened air; comprehension feeble; spoke few words in disjointed, childish manner; appetite inordinate; habits unclean; destructive of clothing and other property; resistive to a marked degree, the most ordinary measures for her comfort requiring four to six nurses. Urine contained albumin (small amount), hyaline and fatty casts. This patient lived a year in the condition described above, more than two years from the beginning of the attack. No autopsy.

CASE XVI. —, aged fifty, Irish, single; had been complaining of minor ailments for two years. Six weeks before admission became suddenly melancholy, with active delusions of persecution; suicidal; refused food and lost flesh rapidly. Died in the eighth month. Became very much emaciated; frequent abscesses followed superficial injuries; during a remission of three months was almost well, quiet, and sensible, but with this exception, was always restless, disorderly, and an exceedingly troublesome patient to care for. Urine contained albumin; no casts noted. Autopsy: Kidneys contracted, capsules adherent, cortex very thin and containing some cysts; pelves dilated and injected; heart valves thickened and atheromatous; atheroma of cerebral vessels.

CASE XVII. —, aged forty, Irish, single, domestic; mother insane at menopause; second attack (first attack, due to "ill-health," eighteen years before). One year before admission awoke suddenly in the night with the delusion that her room-mate was going to kill her. Lived seven months (nineteen from the beginning), always in a condition of exaggerated fear and apprehension. Gradual physical deterioration with development of tuberculosis. No record of urine. Autopsy: Kidneys contracted, cortex very much thinned. Fatty degeneration of heart, with thickening of valves. Lungs tuberculous, with almost total destruction of the right; two pints of purulent fluid in the right pleural sac.

CASE XVIII. —, aged thirty-seven, American, married, and mother of five children; patient said to have been a chronic sufferer from "indigestion, liver and kidney troubles." Mental symptoms of four months' duration; a gradual development of melancholia with tendency to stupor. On admission, urine contained hyaline casts with granular epithelium. Mind and body failed together and she died in four and one-half months, eight and one-half months from the beginning. Pulmonary tuberculosis developed in the later stages. Autopsy: Granular, contracted kidneys; tuberculosis of lungs; mitral stenosis of heart.

CASE XIX. —, aged past fifty, married, no children, Irish; a niece insane. Had been considered fairly well up to about two months before admission, when she began to worry about trifles and developed hallucinations of sight and hearing; attempted suicide by cutting abdomen with a razor because she was "tired of herself." On admission, the urine contained hyaline casts; tendency to obesity, with flabby flesh and sluggish circulation; heart-sounds feeble. This patient seemed more hypochondriacal than truly melancholy; her attention could generally be diverted and at times she was even cheerful. Her suicidal intentions were not much credited until, one month after her admission to the hospital, she managed to secrete a table-knife and cut her own throat almost "from ear to ear," half severing the trachea, but no important vessels. This was followed by an amelioration of the mental symptoms. The wound kept in healthy condition and had healed to within one and a half inches (small opening into the trachea remained) at the time of her death, which was two months from the time of her admission, four from the beginning of her insanity. She was constantly threatened with heart-failure, and her death, occurring very suddenly, was evidently due to that cause. Autopsy: Kidneys a little swollen in appearance; capsule not adherent; cortex thin, friable, and of yellowish color, containing some cysts; pelves dilated and injected. Heart flabby and fatty, valves thickened and atheromatous. Liver large and fatty. Right lung contained, in posterior part of lower lobe, a gangrenous area, two by three inches, circumscribed by inflammatory adhesions of the adjacent pleura. Brain not examined.

CASE XX. —, aged seventy-two, American, married; two brothers committed suicide. Suicidal melancholia of six months' duration; had a similar attack three years before from which she apparently recovered. Lived two months, eight from beginning of last attack. No autopsy. Urine contained waxy and granular casts.

CASE XXI. —, aged twenty-four, American, single, domestic; was "running down" in health for an indefinite time. Melancholia of restless type; rapid decline with development of tuberculosis. Urine contained a small amount of albumin. Died in four months. Autopsy: Granular, contracted kidneys; tuberculosis of lungs; mitral stenosis of heart; fatty liver.

CASE XXII. —, aged sixty-six, American, widow. Melancholy for one year before admission, and committed suicide by hanging herself two months later. Urine contained albumin and hyaline casts. There was a mitral systolic murmur of the heart. No autopsy.

CASE XXIII. —, aged sixty, Pennsylvania German, widow. Whole duration nine and one-half years. Restless melancholia with keenest apprehensions constantly present. In the early stages would look out of the window and scream "The sky is coming down!" "We shall all be burned up!" in an agony of fear. Terminated in partial dementia of melancholic type, with extreme emaciation. Autopsy: Kidneys, cortex almost entirely destroyed by fatty change. Heart, atheroma and thickening of valves; calculus in gall-bladder.

CASE XXIV. —, aged sixty-five, American, widow, one daughter whose mental capacity seemed below the average. Two weeks before admission arose in the night and tried to set fire to the house. Condition that of

restless melancholia of rather quiet type. Lived six and one-half years ; without remissions ; tendency to dementia slight. Autopsy: Kidneys contracted, with extensive destruction of cortex. Heart-valves thickened. Lungs tuberculous.

Third group.—Cases (8) terminating in rapid recovery.

CASE XXV. —, aged thirty-seven, mulatto, married ; ten days before expiration of a year's sentence in prison became melancholy, with keen apprehension of personal injury ; hallucinations of hearing and of smell ; refused food, "having heard them say that it was poisoned to kill her." On admission, urine contained a considerable amount of uric acid and a small amount of albumin ; no casts noted. The mental symptoms disappeared in a few days and coincidentally the urine became normal. She was discharged quite well in one month.

CASE XXVI. —, aged forty-four, American, married, mother of seven healthy children. Had suffered from uterine trouble for seven years ; internal hemorrhoids also. Simple melancholia developed two months before admission ; lost interest in household and family ; apprehensions of injury ; headache, insomnia, "noises in head," etc. Urine contained hyaline casts and granular epithelium ; heart normal. Recovered in six weeks (now two and one-half years ago).

CASE XXVII. —, aged forty-nine, American, single ; no insanity in family. Patient lived on a farm, in comfortable circumstances, and was accustomed to eating largely of food that was difficult of digestion ; a large woman of full habit ; melancholia developed very suddenly ; distrusted her own family and jumped from an upper window with the idea of escaping impending danger. On admission (three days after beginning of insanity), mind much confused ; incoherent, apprehensive, and especially resistive for about one week, after which convalescence was gradually established ; discharged well in twenty-one days. (No relapse for three years.) Urine, on the third day, contained a large amount of uric acid and a few casts ; on the eighteenth day it was normal.

CASE XXVIII. —, aged fifty-three, American, wife of a well-to-do farmer ; two healthy children ; grandfather and father committed suicide ; sister and paternal cousin also have been insane. Patient was never strong ; subject to palpitation of heart. At seventeen years had an attack of melancholia lasting "a few weeks." Four years ago was again melancholy for ten weeks, ascribed to "general debility." Present attack of three weeks' duration (irritable in her family for a longer period), restless, dissatisfied, and suspicious ; suicidal tendencies suspected ; physical condition poor ; complained of "pains all over." On admission, found weak and anæmic ; the urine contained much uric acid, a considerable amount of albumin, and a few granular casts. There was a mitral systolic heart murmur. With improvement in her physical condition the mental symptoms disappeared, and she went home in three months quite well in mind ; at that time examination of the urine showed a small amount of uric acid but no albumin or casts. This patient has now been at home seventeen months ; while I do not believe it possible

for her ever to be well, in a physical sense, immunity from mental symptoms will depend upon the care with which the conditions of her life are regulated.

CASE XXIX. —, aged seventy-one, English, widow with two healthy children; a small delicately built woman. Two previous attacks of melancholia nine years apart. Present attack of four months' duration, appearing to follow erysipelas. On admission restless, apprehensive, suicidal. The urine contained a considerable amount of albumin, with many hyaline, granular, and waxy casts, which gradually diminished, with coincident improvement in the mental symptoms, until she was discharged well in two months from the time of her admission. At that time the urine contained an occasional cast but no albumin.

In this case, as in the preceding one, the prognosis must be conditional. I cannot doubt in this, as in many similar cases that have come under my care, that the mental manifestations have been coincident with, and closely related to, exacerbations in the course of a slow, interstitial nephritis extending over many years.

CASE XXX. —, aged thirty-five, Pennsylvania German, married; father once insane but recovered. Insanity, with frenzied excitement, developed two weeks before she was brought to me; had been tied down to prevent her injuring herself; would try to beat her head against the walls and floor, to dig out her eyes, etc. After admission, great restlessness continued for several days; sometimes would utter the most piercing screams for hours at a time; there was general confusion of mind, which gradually disappeared, but depression of spirits, apprehensions, etc., with remissions, persisted for a longer time. She went home well in six weeks, eight from the beginning of the attack. The urine, on admission, contained albumin, hyaline and granular casts. (It is much to be regretted that there is no record of the urine at the time of her discharge.)

CASE XXXI. —, aged fifty, American, married, with two healthy children. Rheumatism one year before admission to the hospital; mental depression for two weeks, restlessness, apprehensive delusions, suicidal tendencies, and rapid physical deterioration; complexion markedly sallow; urine contained uric acid and granular casts; heart-sounds feeble, with a mitral systolic murmur. Under tonic treatment her physical condition improved, the mental symptoms disappeared, and she went home well in two months.

CASE XXXII. —, aged forty-eight, American, single; very marked family tendency to insanity, and patient herself rather below the average mentally. A large heavily built woman. Fifteen days before admission to the hospital began to show mental disturbance with remissions; on the thirteenth day awoke from sleep with piercing screams; the same day had severe pain in the region of the heart, with dyspnoea, lasting twenty minutes; micturition was reported as abnormally frequent during the first week, and she had complained of "pain in the back." On admission, face turgid, eyes injected, skin hot to touch; markedly resistive with general confusion of mind. Venesection was followed by immediate relief of the condition described, and on the second day she resembled nothing so much as a good-

natured baby who is just learning to talk. She slowly regained her normal condition, and was discharged practically well in about two months. (One year later I have heard that there has been a relapse.) The urine contained uric acid, albumin, and casts, which diminished, but did not (the uric acid excepted) entirely disappear with her restoration to mental health.

Fourth group.—Cases (3) recovering after many months.

CASE XXXIII. —, aged twenty-eight, American, wife of travelling salesman, with two healthy children; of healthy family. For the preceding year had complained of a “heavy pressure across the middle of the abdomen;” mentally deranged for seven weeks before admission, during which she was at first restless, with keen apprehensions of injury, followed by quiet with tendency to stupor. In the hospital was a typical case of “melancholia with stupor,” showing little change for eight months, after which she gradually recovered. She went home in the tenth month; at that time her mind was slightly dull and worked slowly, but she has since been reported as entirely well (now nearly three years). The urine contained albumin, blood-corpuscles, hyaline, epithelial and granular casts, during the first month, diminishing during the second, and disappearing entirely after the third month.

CASE XXXIV. —, aged thirty-three, Irish, single, domestic; in America over three years. For two years had been “running down” in health, with no very pronounced symptoms. Melancholy for four weeks before coming to the hospital; often cried loudly, saying “My soul is lost! Judgment day is coming!” Had in that time two short periods (three hours) of immobility. Had refused food almost entirely for two weeks. On admission, condition markedly resistive, and continued for about a month a mixture of stupor and obstinacy; often required mechanical feeding; a few times made violent attacks upon someone near, without warning or provocation; at the end of that time passed into a condition wholly passive and stupid; stationary for a year, then began to take some interest in the work of the ward, and gradually recovered. The urine, on admission, contained a considerable amount of albumin, hyaline and granular casts; on discharge, no albumin, but a few hyaline casts. While practically well at the time of her discharge, it is doubtful if her mind had quite its former acuteness, and I look upon her as liable to a relapse.

CASE XXXV. —, aged twenty-five, single, parents Irish and German, worked in a mill; no insanity in family. Two months before admission came home from work sick, “seemed to have taken cold;” nine days later began to have melancholic delusions with increasing restlessness. With us, she was tormented with self-condemnatory delusions for several weeks, with constant restlessness and suicidal impulses; then improved slowly, and after six months spent a few weeks at home, only to come back worse than before. At home had attempted suicide by setting fire to her clothing. Her mental anguish was now indescribable; for weeks she would walk the floor, wringing her hands, crying aloud, and accusing herself; she was always in motion, picking at or tearing her clothing, scraping plaster from the walls, etc., if not

constantly watched—not from mischievous propensities, but because she “could not keep still.” This was two years ago. Six months ago she went home and has engaged in business as a dressmaker. For a year before, she was almost well but seemed afraid to go home. The early records of the urine in this case I cannot rely upon; a year ago a few granular casts and a trace of albumin were found. Early in the case there were several attacks of apparent heart failure, and at her best she was subject to pain about the heart for days at a time; at times she had also pain in the left kidney. Pallor was always a noticeable feature; there was a mitral systolic murmur of the heart with accentuated second sound.

Fifth group.—Cases (4) improved and nearly stationary for years.

CASE XXXVI. —, aged fifty-two, American, single, teacher; good family history. Insane fourteen years before she came under my care; for the first two years of that time described as being “in a condition of great excitement,” during which she made two attempts at suicide; improved and lived at home some years with mind somewhat weakened. A few months before admission became more restless; would leave her home and walk long distances with the idea of getting a position; untidy in personal habits. On admission, December, 1884, walked up and down crying; fretful, dissatisfied expression; attention fixed with difficulty; complexion very sallow. For the past four years has been much improved; has gained flesh, reads, and otherwise employs herself; has the freedom of the grounds; expression of face anxious and dissatisfied at times; capacity for continuous application impaired. The urine contains a varying amount of albumin with granular casts. There is a mitral systolic heart murmur.

CASE XXXVII. —, aged forty-two, American, widow with two healthy children. History of “pain in back” and headache for three years before admission, during which a natural disposition to worry had been greatly exaggerated, passing at length into delusions of persecution with apprehensions of injury. For about a year after she came to us she continued much depressed, but for the past six years has been much improved; is rather “difficult” get along with, and is apt to mistrust and misjudge others, but is able to live at home and works industriously. The urine, a year ago, contained a large amount of albumin and granular casts.

CASE XXXVIII. —, aged sixty, Irish, widow; a former attack three years before; insane one week before admission. On admission, restless to extreme degree; would throw herself about the floor and scream for hours at a time; fed with tube for weeks. Improved after six months, and for the past two and a half years has been almost stationary; memory and other mental faculties practically unimpaired, but she is inclined to worry without cause, and her temper is irritable and uneven; insomnia is a marked feature. On admission the urine contained albumin, hyaline and granular casts; at the present time (May, 1889) considerable granular débris, but no albumin or casts.

CASE XXXIX. —, aged forty-five, German, wife of a tailor, with two healthy children; no insanity in family. Eight months before admission had

malaria, and about the same time became melancholy with self-condemnatory delusions and strong suicidal impulses. This patient was for many months one of our most miserably restless cases of melancholia, and one of the most persistently suicidal cases I have ever seen. In the earlier stages she often made fierce attacks upon others, with the idea of being hanged if she killed some one. For about three years now she has been quiet, helpful, and extremely kind to all about her, but she is always under observation as a suicidal patient, because, at times, the impulse comes back to her with overmastering strength. I have no reliable record of the urine at the time of her admission; at the present time (1889) it contains albumin and casts.

Sixth group.—Cases (3) running a very slow downward course.

CASE XL. —, aged thirty-one, widow, American; of good family, but married below her station and lived an irregular life for years; became implicated, with her husband, in some breach of law, and was sent to prison, where melancholia developed, said to be a second attack. On admission (October, 1887), expression of face that of abject despair; delusions self-condemnatory; “God has cursed me!” the only words she spoke. Intensely suicidal; at times homicidal (with the idea of subjecting herself to the death penalty if she could kill another). In the following summer she was, for about a month, in a condition of semi-stupor with restlessness and delusions that she was grossly maltreated, but for the remainder of the time she has been in the condition of despairing melancholy described above, with strong suicidal propensities always present; she is subject to pain in the lumbar region and insomnia is a prominent feature of her case. The urine in this case has always contained casts, hyaline, granular, and sometimes waxy, with albumin, in varying amount.

CASE XLI. —, aged sixty-five, Irish, single; now in hospital nearly three years. Had been generally healthy, but had an “attack of diarrhœa” three months before coming to the hospital, which left her weak; two months later began to lose interest in her work; wanted to wander away from home and mistrusted her friends; finally did not eat, sleep, or change her clothing. On admission, she was in a restless, almost frenzied, condition, resisting everything; in a month passed into a passive condition, in which she has remained, almost without change, to the present time. She is kept in bed, eats well when food is taken to her, submits passively to necessary care, but does not show any interest in anything about her, although her eyes are open and not devoid of intelligence. On admission the urine contained a few casts; one examination, in 1889, showed albumin and an extraordinary number of casts.

CASE XLII. —, aged fifty-six, of German extraction, wife of mechanic, mother of seven children; one paternal cousin insane. Health broken down by “liver trouble” for the previous two years, during the last six months of which she was insane, with delusions of persecution and apprehensions of injury; suspicious of her best friends, and made an attack upon her husband just before coming to the hospital. At times had periods of greater restlessness, when she would make efforts to escape from her supposed enemies.

In the hospital (now eighteen months) she has generally been quiet; face invariably expresses suspicion and misery; at times "voices tell her to hang herself;" occasionally restless and makes efforts to escape; complexion extremely sallow; for the past year slowly losing flesh. On admission the urine contained albumin and waxy casts, confirmed by subsequent examinations.

Seventh group.—Cases (2) illustrating a transformation of melancholia into secondary paranoia with delusions of personal grandeur.

CASE XLIII. —, aged forty-three, of healthy family, American, single. Admitted to the hospital January, 1887, in a condition of melancholia of four years' duration, for the last nineteen months of which she had been in a private hospital for the insane. For the first nine months her whole attitude was that of the most profound dejection; for days she would sit with bowed head, refusing to speak, often to eat; then there would be an interval of a few days, when she would hold up her head, knit, and answer in monosyllables, if spoken to, but never smile, and shunning observation. After nine months (five and one-half years, it will be remembered, from the beginning of her insanity), there was a sudden change and she became as exalted and active as she had previously been depressed and quiet, and her condition has remained practically unchanged for three years. A stranger meeting her might think her merely over-vivacious, with an incessant activity that is almost fatiguing to witness. She is not over ready to speak of her delusions, but if led to it defends her fixed belief that she is "the Queen of Heaven and will never die." She is always usefully employed and very helpful to all about her; she seems never tired. On admission the urine contained albumin (microscopic record not satisfactory). At subsequent examinations

has been a varying amount of albumin with hyaline and granular casts.

CASE XLIV. —, aged thirty-eight, American, single; of good family, and always lived in comfort; never very strong; indulged from childhood and not considered mentally equal to the rest of her family. Admitted to the hospital in September, 1884. "A few years" before had "chills and fever," which left her with pain in the back, apparently increasing in severity. Mentally deranged, with apprehensions of injury and hallucinations, for two months before coming to me, for the last three weeks of which she was sick in bed. After admission to the hospital she was weak and more or less in bed for several weeks, during which she had often fits of loud screaming; often fed with tube; delusions that "men came into her room at night to kill her;" that her "bed was filled with worms," etc. Gradual development of delusions of personal grandeur, that she is "Queen of the United States," "head attendant of the ward," etc. Otherwise mental action fairly good, and she is noted for her cheerfulness and activity. Her condition has been pretty uniform for the past three years. I have no satisfactory record of the urine at the time of admission. One examination, a year ago, showed a large amount of albumin with granular casts. At the present time there is a trace only of albumin with many granular casts. There is a mitral systolic murmur of the heart; complexion a pale sallow.

(I omit two cases marked by extraordinarily varied hallucinations, with delusions of persecution, and one of stuporous melancholia merging into dementia, distinguished in the early stages by cataleptoidal tendencies.)

Eighth group.—Cases (4) of puerperal origin.

CASE XLV. —, aged thirty-eight, American, married and mother of three children. With first child, fifteen years before, had eclampsia and was unconscious for a week. Second child stillborn; labor began with convulsions, which continued for four days. During the third pregnancy, five years ago, urine was found loaded with albumin, and convulsions seemed to be averted by a free venesection. Since that time her memory has appeared to be slightly impaired and she has been subject to fits of depression of spirits. Temper uneven for six months; melancholia, with delusions, one month. Urine loaded with albumin just previous to admission. (For the foregoing notes I am indebted to Dr. R. B. Ewing, of Chester County.) On admission (April, 1889), in condition of pronounced resistive melancholia; face turgid, skin hot, tongue brown and dry; refused food and drink and resisted everything with a frightened, staring expression. The condition described was at once relieved by very free venesection, which reduced the case to one of simple melancholia, in which the mind worked slowly but in natural lines. There was notable improvement for three weeks, then she went down physically, losing flesh for a few weeks and finally, was almost stationary, her mental state that of simple depression for three months, when I advised a change for her. From her home she has written me several letters during the past nine months, which indicate that she has almost entirely regained her mental tone. She writes that she has a cough, but at the last report she had gained twenty pounds in weight. The urine, except immediately after the bleeding, has, at every examination, large amounts of albumin and granular casts. Heart fairly normal.

CASE XLVI. —, aged thirty-two, of Irish parentage, married. Five years ago the birth of her first child was followed by a transitory attack of simple melancholia. Present attack came on a few days after the birth of her second child. On admission, eighteen months ago, she was in a condition of wild excitement, which I at first put down as mania, but which more and more assumed the nature of melancholic frenzy, with remissions; before the nature of the case was fully apprehended she had nearly taken her own life, and she has remained persistently suicidal. She is a most difficult patient to deal with, being an unusual combination of aggressiveness with suicidal proclivities. On admission, the urine contained albumin, of which the relative amount has increased and there are also many granular casts. The heart-sounds have been feeble and irregular.

CASE XLVII. —, aged twenty-five, American, married, three children. Five weeks after the birth of her youngest child jumped out of a chamber window "to save her baby;" had previously been dejected and had complained of "ice-cold feeling" at the base of the brain and of a peculiar itching of the soles. Was stuporous, but not profoundly so, during her stay

with us, and recovery was gradually accomplished in eight months. On admission, the urine contained granular casts.

CASE XLVIII. —, aged thirty-two, mulatto, of superior intelligence; mother and two maternal cousins insane. Two months after confinement with her fourth child became melancholy. On admission, very restless and markedly resistive, soon passing into a semi-stuporous condition, from which she never recovered. Died in three and one-half years of phthisis pulmonalis. The first examination of the urine, made soon after her admission, showed a few casts; but four subsequent examinations, made at different times, gave negative results. Autopsy: Cortex of kidneys fatty, diminished, in places absent; scrapings under microscope showed casts and fat-globules. Heart fatty, hypertrophied, and dilated. Lungs tuberculous.

Ninth group.—Cases (2, also puerperal) complicated with chorea.

In regard to the possible relation between chorea and the presence of “uræmic” poisons in the blood, it is *à priori* conceivable that a condition which so often produces convulsions might also cause those other irregular incoördinate movements known as chorea. I find suggestive mention in some of the books on nervous diseases. Ross¹ accepts “a causal relation between rheumatism and chorea,” and quotes the report of Dr. Mowry, who found “a rheumatic history” in 29 to 32 per cent. of his cases of chorea.

Chorea rather frequently follows scarlet fever, a fact which Ross says “may probably be explained by the frequency with which scarlet fever is followed by rheumatism.”

Both Ross and H. C. Wood² notice that chorea sometimes occurs during pregnancy and that cardiac murmurs are a frequent accompaniment.

Bristowe³ says “chorea presents remarkable relations with heart disease, rheumatism, and scarlet fever.”

CASE XLIX. —, aged twenty-eight, English, married. During her first and only pregnancy, five years ago, began to have fits of mental depression which have continued to the present time; the attacks appear to be periodic, coincident with the menstrual epoch; at such times says she feels a strong impulse to kill herself. General choreic movements, of moderate intensity, have been constantly present for about two years. There is no visible impairment of the mental faculties and her general condition is fairly good. The urine contains granular casts and oil globules. There is a mitral systolic heart murmur.

¹ Diseases of the Nervous System, Philadelphia, 1885, p. 680.

² Nervous Diseases and their Diagnosis, Philadelphia, 1887.

³ Diseases of the Nervous System, London, 1888.

CASE L. —, aged twenty-six, American, married, with two children; domestic relations unhappy. General choreic movements appeared two months after the birth of youngest child, now about two years ago; ten months later began to have delusions concerning her own person—at times of great wealth, etc. Was at other hospitals for a year, and minute history not obtained. On admission (October, 1889), mind very dull; kept in bed; exaggerated choreic movements of all the voluntary muscles. The urine contained granular casts and oil globules; heart action feeble. At the present time has improved a little physically, and shows rather more intelligence; choreic movements unchanged.

Tenth group.—Cases (3) complicated with epileptiform convulsions—the “epileptiform melancholia” of some authors.

CASE LI. —, aged thirty-seven, American, wife of intemperate and abusive husband; two children. History of melancholia five months before admission; in third month had three epileptiform spasms in one night, followed by slight impairment of mind and melancholic delusions; in the fifth month also had several similar convulsions, followed by transient mental excitement. This patient has now been in the hospital eight years, condition pretty uniform throughout; there is slight mental enfeeblement with tendency to mental depression; no delusions; she works industriously and has the freedom of the grounds. Complexion sallow and waxy. Reports of the urine in the early stages are wanting; there are now (May, 1889), casts and albumin in considerable amount.

CASE LII. —, aged eighteen, Irish, single; father once insane from injury and recovered. Patient worked in mill; at fourteen years of age had an attack of malaria, of which weakness was a prominent feature; two years ago had a “bilious attack” and was admitted to our hospital (being then sixteen years of age) with general confusion of mind, tending to dulness and obstinacy—occasionally restless, unclothing herself. Recovered in three months. (No satisfactory record of urine at that time.) Returned in two years; at second admission, urine contained hyaline casts. Quiet, mind slightly dull, with delusions of persecution, not very active. Had one convulsion, a few days after admission, lasting two to three minutes, and, later, another, described by the nurse as epileptiform and of considerable severity. She went home in six months apparently well. About a year later I heard that there was a relapse, but as she did not come under my care it was probably transient.

CASE LIII. —, aged forty-four, American, married, no children. Subject to headaches, and “pain in the back;” for three months before admission, suffered from insomnia, loss of appetite, increasing mental depression, with apprehensions of injury and suicidal tendencies. On admission, December, 1889, skin very dark sallow; emaciated; apprehensive, worrying, but mind increasingly dull. One examination of the urine at this time gave negative results. In the sixth week following, had an epileptiform convulsion, followed by increased physical prostration. A subsequent examination of the urine showed casts and a large amount of fat. Her condition to the

present time (June, 1890), has been that of progressive mental and physical decline, and marked by no special symptom.

To the preceding, I want to add notes of some recent cases that seem to me of special interest. The first two of these will illustrate the sudden invasion of melancholia, often so disastrous.

CASE LIV. —, aged fifty-five, American, widow, mother of two robust children; no insanity in family; father died of cancer, brother and sister of phthisis. Patient had pneumonia twice, the last attack two years before date, following which her health was less good; she had periods of insomnia and was more than formerly inclined to fret and worry. Twenty-three days before I saw her she had come to Philadelphia from her home in New York on a visit; at that time was under no medical supervision, but seemed to be in a condition of premature decay. Twelve days before I saw her she asked for a hammer "to fix her trunk," and went up to her bedroom, where she was found a few minutes later violently pounding her head with the hammer; she had made a large open wound of the scalp in the top of her head and had bruised her face and temples. On admission to the hospital we found her in a condition of general debility. Heart action very weak, sometimes irregular, with mitral systolic murmur. The urine contained many fine granular casts and fat-globules. She was at times very restless; often had self-condemnatory delusions; sometimes believed herself "possessed of the devil;" complained much of pain and crawling sensations in the top of the head. She remained with us only two weeks, and died at her home a few weeks later, her downward course marked by no special feature.

CASE LV. —, aged thirty-nine, of German parentage, married but deserted by husband; two children, youngest six months old. Had been considered ordinarily healthy; subject to rather frequent headaches, mostly frontal, for some years. One week before I saw her, on a rainy day, she had been out and came in quite agitated, saying "Some one had given her poisoned candy;" soon became much excited and said there "were men in the room after her with pistols!" and jumped out of the window (first floor) to save herself. She was brought back and quieted, but during the following night jumped out of a chamber window, under the delusion that someone "was after her to kill her," fortunately sustaining no more severe injury than a sprained ankle. She was taken to a hospital the following day, and came to us at the end of the week. On admission, anæmic, expression of exaggerated apprehension and fear, delusions of persecution and self-condemnation, extraordinary hallucinations of hearing—as the discharge of loud guns near her head, etc. Urine contained granular casts. Improved very rapidly in body and mind, and in three weeks appeared to be well. I was considering the advisability of discharging her, when she relapsed into a condition of acute mania which has continued now two months; her physical condition is fairly good, and I regard the prognosis as favorable.

CASE LVI. —, aged twenty-five, American, single; mother of feeble intellect and one brother now insane. Patient had been overtaxed in body and mind, when she was attacked by the epidemic influenza in the beginning

of the present year, with considerable catarrhal lung trouble; she had no proper care and was harassed by her insane brother, then at home. Three days before admission to the hospital she became suddenly and violently insane. On admission, her mental excitement was very great and in the form of mania, but it soon became intermittent and took the form of persecutory delusions. The urine contained granular casts at that time; a little later, while passing through an attack of erysipelas of the face, there were large quantities of albumin, granular and blood casts and blood disks, which diminished coincidently with abatement of the mental symptoms. Under treatment she recovered rapidly and well. (Two months.) I made one examination of the urine, about a month after recovery, and found considerable granular detritus, no albumin or casts.

CASE LVII. —, aged thirty-nine, of Irish parentage, single; general health always considered good up to January, 1890, when she had the epidemic influenza, took no care of herself, has been in poor health since. For a month previous to admission, April 10, 1890, had delusions that her family wanted to poison her; insomnia and restlessness prominent features; tried to get away from home. On admission, urine contained albumin and granular casts. Mental condition as described; expression despairing; refused food and at times fed with tube. At present (June) is improving.

CASE LVIII. —, aged forty, Pennsylvania German, single, domestic; general health has been considered good; not as well as usual for two weeks, but kept at work until three days before admission (May 31, 1890), when she jumped out of her chamber window to escape imagined dangers. On admission, mind confused, with tendency to stupor, for a few days; then a short lucid interval, followed by a condition characterized by suspicion and obstinacy. The urine contains granular and epithelial casts. Her general condition is improving and she will probably recover.

CASE LIX. —, aged thirty, American, married, mother of four children, of which the youngest is four and one-half months old. Subject to frequent "sick headaches" for years; said to have heart trouble and suffers from hemorrhoids. About six weeks after the birth of her last child was taken with the epidemic influenza; "severe pain running up the back and stopping in the top of the head," the most prominent feature of the attack, from which she never got up well. Melancholia, with delusions, showed itself almost immediately; said that there was "an evil spirit following her and controlling her actions;" accused herself of having "murdered" her child, etc.; insomnia, loss of appetite, periods of great restlessness and rapid physical prostration. Once escaped from her family during the night. General condition, since admission (May 26, 1890), very poor; anæmic. Urine contains granular casts and fatty epithelium. Heart weak, with loud mitral systolic murmur. Mentally as described above; prognosis doubtful.

CASE LX. —, aged thirty-two, American, married, mother of two children, youngest nine months old; a paternal cousin is an epileptic. Had malaria in June, 1888, and has been running down in health ever since; additionally depressed by a moderate attack of the influenza, in January of this year. Has a slight laceration of the cervix uteri, and was in the Woman's

Hospital for six weeks, leaving there two weeks before admission to the Norristown Hospital. About that time began to awaken suddenly from sleep, in the night, in a sort of terror; once tried to get out of the window in her fear. Every night would say, "This is my last night to live." The urine contains granular casts and much granular epithelium; there is a loud mitral systolic heart murmur; complexion very sallow; general condition poor. Now in hospital two weeks; quiet, with self-condemnatory delusions. For the past two months said to have complained much of "creeping sensations" in the back of the head and neck; "pain in the back" has also been a common symptom for two years.

THREE HUNDRED AND FORTY CASES OF LABOR.

By JOHN M. BATTEN, M.D.,
OF PITTSBURG.

MR. CHAIRMAN: I wish to make some remarks briefly, based on a record of a series of 340 cases of labor, giving the number of women delivered at the age of seventeen years, eighteen years, and so on, up to 47 years, whether a primipara or a multipara; the presentation; whether white or black; whether the umbilical cord was wrapped around the neck of the child; number of stillborn; number of deaths of mother; the positions and sexes of children born; whether delivery took place during the first six hours, second six hours, third six hours, or the fourth six hours of the twenty-four hours, commencing at midnight; whether I used ergot or the forceps, and the length of time occupied in the first stage, second stage, and third stage of labor; with which record I will not take up the time of this Society.

Summarizing the above record, we have as follows:

Age.	No.	Per cent.	
17	2	$\frac{10}{17}$	Number of primiparæ . . . 125 or $36\frac{13}{17}$ per cent.
18	9	$2\frac{11}{17}$	“ “ multiparæ . . . 215 “ $63\frac{4}{17}$ “
19	6	$1\frac{13}{17}$	“ “ head presentations . 329 “ $96\frac{164}{341}$ “
20	17	5	“ “ breech “ . 10 “ $2\frac{318}{341}$ “
21	30	$8\frac{14}{17}$	“ “ face “ . 2 “ $\frac{200}{341}$ “
22	24	$7\frac{1}{17}$ {	“ “ first position . } 338 “ $99\frac{41}{341}$ “ (O. or C. L. A.)
23	36	$10\frac{10}{17}$ {	“ “ second position . } 1 “ $\frac{100}{341}$ of 1 per ct. (O. or C. R. A.)
24	33	$9\frac{12}{17}$ {	“ “ third position . } 2 “ $\frac{200}{341}$ “ “ (O. or C. R. S. I. S.)
25	27	$7\frac{16}{17}$	“ “ white patients . . 320 “ $94\frac{2}{17}$ per cent.
26	25	$7\frac{6}{17}$	“ “ colored “ . . 20 “ $5\frac{15}{17}$ “
27	23	$6\frac{13}{17}$	“ “ males born . . . 174 “ $51\frac{9}{341}$ “
28	17	5	“ “ females “ . . . 167 “ $48\frac{332}{341}$ “
29	8	$2\frac{6}{17}$ {	“ “ women confined from } 90 “ $26\frac{8}{17}$ “ 12 P. M to 6 A. M.

Age.	No.	Per cent.			
30	19	$5\frac{10}{17}$	{	Number of women confined from 6 A. M. to 12 M.	87 or $25\frac{10}{17}$ per cent.
31	7	$2\frac{1}{17}$	{	" " women confined from 12 M. to 6 P. M.	76 " $22\frac{6}{17}$ "
32	9	$2\frac{11}{17}$	{	" " women confined from 6 P. M. to 12 P. M.	87 " $25\frac{10}{17}$ "
33	4	$1\frac{3}{17}$	"	" " times forceps were used	14 " $4\frac{2}{17}$ "
34	4	$1\frac{3}{17}$	{	" " times craniotomy was performed	1 " $\frac{5}{17}$ of 1 per ct.
35	13	$3\frac{14}{17}$	{	" " times ergot was used in the 2d stage of labor	6 " $1\frac{13}{17}$ per cent.
36	7	$2\frac{1}{17}$	"	" " deaths of mother.	3 " $\frac{15}{17}$ of 1 per ct.
37	6	$1\frac{13}{17}$	"	" " stillborn	9 " $2\frac{218}{341}$ per cent.
38	5	$1\frac{8}{17}$	"	" " premature births	7 " $2\frac{1}{17}$ "
39	2	$\frac{10}{17}$	{	" " navel cord was wrapped once, twice, or thrice around neck of child.	9 " $2\frac{11}{17}$ "
40	3	$\frac{15}{17}$	"	" " post-partum hemorrhage	3 " $\frac{15}{17}$ of 1 per ct.
41	1	$\frac{5}{17}$	"	" " partial placenta prævia	3 " $\frac{15}{17}$ " "
42	—	—	"	" " twins	1 " $\frac{5}{17}$ " "
43	—	—			
44	1	$\frac{5}{17}$			
45	—	—		Oldest multipara	. . . 47
46	1	$\frac{5}{17}$		Youngest primipara	. . . 17
47	1	$\frac{5}{17}$		Oldest primipara	. . . 36

The most fecund age of these 340 cases was in 24th year.

Of the 340 cases of labor, 34 or 10 per cent. were delivered in January.

"	"	"	"	29	"	$8\frac{9}{17}$	"	"	"	February.
"	"	"	"	34	"	10	"	"	"	March.
"	"	"	"	24	"	$7\frac{1}{17}$	"	"	"	April.
"	"	"	"	23	"	$6\frac{13}{17}$	"	"	"	May.
"	"	"	"	18	"	$5\frac{5}{17}$	"	"	"	June.
"	"	"	"	29	"	$8\frac{9}{17}$	"	"	"	July.
"	"	"	"	26	"	$7\frac{11}{17}$	"	"	"	August.
"	"	"	"	32	"	$9\frac{7}{17}$	"	"	"	September.
"	"	"	"	23	"	$6\frac{13}{17}$	"	"	"	October.
"	"	"	"	40	"	$11\frac{13}{17}$	"	"	"	November.
"	"	"	"	28	"	$8\frac{4}{17}$	"	"	"	December.

You will observe by my record of these 340 cases of lying-in women, that the number of deaths from all causes is three, or $\frac{15}{17}$ of one per cent. of the whole number of cases recorded. One died from uterine phlebitis, one from puerperal septicæmia, and the other from puerperal peritonitis. The death of Case 82, from puerperal septicæmia, occurred in a house in which there had been

recently a case of typhoid fever, and the sanitary condition of the house was very bad. In Case 87, in which death occurred from puerperal peritonitis, the cause of the disease could not be traced. The history of Case 274, in which death occurred from uterine phlebitis, is briefly as follows: I arrived to the patient one-half hour after the birth of the child; I found there was a case of post-partum hemorrhage to deal with. The patient was exsanguinated and in a swoon, with the placenta undelivered. I removed the placenta, gave ergot and stimulants, produced pressure over the fundus uteri, and in an hour and a half thereafter, at 11 o'clock in the evening, the patient reacted. During the succeeding forty-eight hours the patient was comfortable and cheerful. At the end of this time, however, I noticed an increase in the frequency of the pulse, an increase in temperature, and a diminished lochial discharge. From this time on the patient grew worse in spite of treatment. The pulse became more rapid, there was a marked increase in the temperature, the lochia was suppressed, and the patient faint. Finally, after suffering two days, she died.

Of the nine children which were stillborn, three were breech presentations, the balance (six) were head. One of the latter was macerated *in utero* and another was killed from the operation of craniotomy. Of the seven premature births previous to seven months *in utero*, all, of course, died. Two children died within forty-eight hours after birth, of cyanosis, or imperfectly developed heart. The three partial placenta prævia cases all recovered with tamponing in the first stage and ergot in the second stage. The three post-partum hemorrhage cases recovered except Case 274. I may say in relation to that case: the bleeding was caused, I think, by the placenta remaining too long undelivered. I am a great advocate of rapid delivery of the placenta. In the other two cases of post-partum hemorrhage, the hemorrhage was controlled by ergot, stimulants, and also pressure produced over the fundus uteri, and the patients recovered.

I have had an unusual run of good luck in the presentations and in the positions. Of the 341 children born, 329 were head presentations, and 338 were in the first position occipital, or coccyx to the left acetabulum. Of the nine cases in which the umbilical cord was wrapped once, twice, or thrice around the neck of the child, in three cases, at least, in which the cord was wrapped three times

around the neck of the child, the so shortened cords acted, I think, as factors in the retardation of labor.

Ergot is a very dangerous drug to give in the second stage of labor for the purpose of hastening delivery, and therefore it should seldom, if ever, be administered in that stage, except in cases of partial placenta prævia, in which cases, in the early part of the second stage, it acts in contracting the uterus and thereby preventing hemorrhage, by keeping the head well down on the bleeding vessels. Ergot in the second stage of labor usually causes irregular, spasmodic, and insufficient pains, and may produce rupture of the uterus, and thereby death of the mother. It may cause death of the child and rupture of the perineum. In cases in which it is necessary to use the forceps, it makes the application of them doubly difficult. It also may cause hour-glass contraction, and thereby the death of the mother. Much may be accomplished, ordinarily, without ergot, in the way of coaxing the delivery of the child. The patient should be kept warm, and not allowed to become chilled when she is perspiring and suffering with heavy pains. A cup of hot tea or hot toddy may often do good when you find the pains are inefficient and the patient's skin is getting cold and clammy. Change of position from back to side, or to the knee-elbow position, may often be of service in retarded labor. After sufficient time has elapsed after the second stage of labor has commenced, three and a half or four hours, and the child is not born, the forceps should be used, especially if you have reason to believe that further delay may cause the death of the child. I have always followed this rule and have not often been disappointed. In three cases I used the forceps in two hours after the second stage of labor had commenced, and delivered just in time to save the lives of the children. In three cases the cord was wrapped three times around the neck of each child. I have used the instruments fourteen times in the 340 cases. The longest time I have had the forceps on in delivery was one and a quarter hours; the patient was a primipara and weighed 160 pounds; the child when it was born weighed 12 pounds.

The first part of labor, when the os is rigid and undilatable, may be hastened by giving small and frequently repeated doses of ipecac and tartar emetic combined, or, what is still better, a single but decided dose of sulphate of morphine. I have been told that

cocaine grs. ij to the ʒj of vaseline, made into an ointment and applied around the rim of the os, is a good remedy in these cases.

Craniotomy was performed once in the 340 cases, on account of contracted pelvis.

One case (272) had advanced far with ovarian tumor when she was impregnated. The child, a large boy, was born July 15, 1879, and she was operated on successfully on May 17, 1881.

The number of twins, as stated, was one; both of the twins were females, one was born twenty minutes after the other. There was no history of previous twins in the family on either father's or mother's side.

The longest time any of my patients was compelled to lie in bed immediately preceding delivery was one month. This condition was caused by falling down a flight of stairs. It was the only easy position she could assume during this time.

The shortest time occupied in the delivery of a primipara among these 340 cases of labor was as follows: (1) one-half hour, (2) one-half hour, (3) one-twelfth hour.

The only case of ruptured perineum in the 340 cases that came under my observation is now the mother of ten children. The perineum is ruptured well back to the anus, and has ruptured little by little at each successive birth till the rupture now extends to the anus. The woman is a healthy, robust Irish woman; the rupture gives her no inconvenience. She does all the work for her family, and continues to have a child about every eighteen months. Her children are exceedingly large at birth, and the second part of labor is very rapid.

One case of puerperal fever recovered after lingering for some time. Her recovery during sickness was often despaired of.

As to whether labor is a physiological or a pathological process is doubtful, for there are those who take one view of it, whilst others take a different view. I think, however, that it is safer probably to take the latter view of it—that is, that labor is a pathological process—and treat it accordingly. The patient, therefore, should be kept on a very light diet for the first two or three days after delivery, when, if her condition is favorable, she may return to nearly a full diet. The lochia should be watched carefully, and, if it becomes too scant, hot water by injection should be used three times a day, or oftener if necessary, so as to reestablish a plentiful discharge. If the discharge is offensive, then the hot water should

contain 5 per cent. of carbolic acid, or 1 : 2000 of mercuric chloride. Cleanliness should be insisted upon. The bed and bedding, and room, should be kept scrupulously clean, and well aired. There should be no carpets or curtains, nor papered walls, in the lying-in room. The genital organs should be sponged often with a hot 5 per cent. solution of carbolic acid, or a weaker solution may do. All cloths used about the patient should be made aseptic and changed often. Nobody but the nurse and physician should see the patient for the first nine days after delivery, and they should make themselves as aseptic as possible in the lying-in room.

Is puerperal fever a preventable disease? In looking over some of the reports of this disease during different periods, we may assume at least that the disease is susceptible of being diminished, if not entirely prevented, under aseptic and antiseptic precautions. Dr. Matthews Duncan, after careful investigation of the subject nineteen years ago, said not fewer than 1 in 120 cases of women delivered at or near full term die within four weeks of childbed, of puerperal fever. The late Dr. Farr declared, in 1856, that of 189 cases of labor in England and Wales, only 1 died of puerperal fever. Dr. Farr, therefore, denounced Dr. Duncan as an alarmist, but afterward and before his death admitted that the mortality of women from puerperal fever was 1 in 129.

During the three years, 1867-69 inclusive, in England and Wales, according to the Registrar-General's returns, were born alive 2,228,588 children. The deaths from childbed were 10,198 (from puerperal fever 3343), being an average mortality per 1000 of 4.57. In the three years, 1884-87, there were 2,704,886 children born alive: deaths from childbirth 12,673, from puerperal fever 6966) giving an average mortality per 1000 of 4.68; showing an average yearly mortality of 2322, or 0.85 per 1000, from puerperal fever in England and Wales during this period. Dr. Cullingworth says, from other and more reliable statistics we may estimate that 65 to 75 per cent. of the deaths from childbirth are caused by puerperal fever.

About a hundred years ago Dr. Alexander Gordon published an account of an outbreak of puerperal fever at Aberdeen in December, 1789, and also one in March, 1792. Giving a table of 77 cases that came under his own care, he showed that nurses, midwives, and physicians were accountable for the spread and continuance of the disease. He admits that he carried the disease himself to a

number of women. He said he could predict beforehand who would be affected by the disease when he knew who the nurse and practitioner of midwifery were to be, and that his predictions were always verified. Dr. Robertson, of Manchester, England, gives an account of an outbreak of puerperal fever in the St. Mary's Hospital, due to one infected midwife, and Mr. Blackmore gives an account of an outbreak of puerperal fever at Plymouth, in 1831. The immortal Semmelweise, in 1847, finally cleared up the mystery as to the cause and spread of puerperal fever, and sowed the first seed of antiseptic and aseptic midwifery.

From 1863 to 1880 in the Vienna Lying-in Hospital the rate of death from puerperal fever was 11 in 1000. From 1880 to 1886 the rate was 4. During 1881 to 1886 in the Vienna Lying-in Hospital there were 15,070 deliveries, with 2543 obstetrical operations, including 9 Cæsarean sections. The mortality of puerperal fever in Dresden Clinic was 8.7 per 1000 in 1884; 1.4 in 1885; 1.4 in 1886; and 0.7 in 1887; the mortality in 1872 was 50 per 1000. In the Dresden Clinic, out of 2775 women delivered in 1886 and 1887, 396, or 14 per cent., required operative interference; 27 of the patients had eclampsia, there were 23 cases of placenta prævia, and 224 well-marked contractions of the pelvis. In 1886, 77.8 per cent. of the patients made perfectly normal recoveries, and in 1887, 95 per cent. In 1883 the mortality per 1000 from sepsis in the New York Maternity Hospital was 60.6. After the antiseptic treatment was inaugurated in that institution, the rate fell, in 1884, to 5.9; to 1.8 in 1885; and in 1886 the rate was 2.1. In 1882 the mortality from sepsis per 1000 in the Boston Lying-in Hospital was 55.5; in 1883, 45.8; in 1884, 16.1; in 1885, 6.4; and in 1886, 0.

Koch said, a little less than three years ago, that septicæmia was beyond the grasp of German pathologists, as antisepsis had succeeded in almost exterminating the disease in that country. Senn, in his *Four Months Among Surgeons of Europe*, says: "The antiseptic precautions in the lying-in department of the Burger Hospital in Strasburg are so thoroughly carried out that puerperal sepsis has never been known to originate within its walls. A small building isolated from the main building serves for the reception and treatment of infected patients from the city and surrounding country, and here the students find the only opportunity to study at the bedside and the post-mortem room the infective disease incident to childbed."

Dr. Cullingworth says: "The only way to avoid this terrible mortality, and avoid also the enormous amount of puerperal disease which, because it is not always fatal, remains unrecorded, is for every practitioner in midwifery to recognize his personal responsibility in the matter."

In each of these 340 cases of labor I have endeavored to effect delivery of the placenta by making gentle traction on the cord, and have failed yet to discover any ill-effects from such procedure. I think, therefore, that the ill-effects claimed from this mode of delivery of the placenta by many practitioners of midwifery is nothing but a bugaboo. Immediately after delivery of the child I effect contraction of the uterus, if it is not already contracted, by producing pressure with the hand over the fundus uteri. I then separate the child from the mother. I tie the ligature around the cord two inches from the child, cut the cord on the mother's side of the ligature one-half inch from it. I allow the mother end of the cord to bleed in a cup or chamber, and then throw a ligature around it. The child is then given into the nurse's care. Contraction of the uterus is again secured by pressure with the hand over the fundus uteri; when the uterus is well contracted, I wrap the cord once or twice round my right hand if on the right side of my patient, round the left hand if on the left side, and with the index-finger of the other hand I follow the cord into the vagina till I touch the placenta; I also, at the same time, satisfy myself that there has been no rupture of the perineum. I then tell the mother to bear down whilst I make gentle traction on the cord, and the placenta is soon born. After the body of the placenta is born, I twist its membranes by turning the placenta round and round on itself till all the membranes come away. If I do not succeed in the first trial in the delivery of the placenta, and the uterus becomes relaxed, I free both hands, wash them, and again produce contraction of the uterus by pressure over the fundus uteri, when I proceed as before. If after two or three like efforts the placenta is not born, I introduce my hand and forearm—after having first anointed them with an antiseptic ointment—into the vagina and uterus, and deliver. This procedure is not often necessary. A full dose of ergot is given the patient immediately after the placenta is delivered. All soiled cloths are taken away from the patient, the bandage applied, and the patient made as aseptic and comfortable as possible.

INTRA-OCULAR SYRINGING IN CATARACT EXTRACTION, WITH A REPORT OF FIFTY-THREE OPERATIONS.

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THE history of medicine, in all its departments, thoroughly illustrates the war incessantly waged between the progressive and the conservative elements in human nature. In our nineteenth century, especially its latter half, *laissez faire* appears to be at a discount. "Forgetting the things that are behind, we reach forward" with almost feverish activity after a more refined diagnosis, more satisfactory therapeutics, and more efficient methods in surgery.

In the domain of ophthalmic surgery we observe the same unrest, the same stirring up of the dry bones, the same fearless discussion of principles once supposed to be forever settled by the authority of great names: *Nullius addictus jurare in verba magistri*. For example, it was long considered that in the method of operating for cataract proposed by the immortal von Graefe high-watermark had been reached, but the method has been since so greatly modified that the father of the Graefe operation would not recognize his own child. Even the iridectomy has been attacked and its necessity questioned by some of the most eminent operators, and a general return to the simple operation, as it is called, confidently predicted. It is not the purpose of the writer of this paper to enter into the merits of the iridectomy question, which may, for the present, be regarded as *sub judice*. He will content himself with saying that, while the statistics presented by DeWecker, Knapp, and other advocates of the simple operation would be difficult to improve upon, he scarcely feels justified in abandoning a

method which seems to him to be founded on reason and approved by experience.

The most important innovation introduced within recent years into the operation for the extraction of cataract is the injection of fluids into the anterior chamber after the expulsion of the lens. This procedure was instituted or rather reintroduced¹ in 1884, by McKeown, of Belfast, but was almost simultaneously practised by Wicherkiewicz, and was soon taken up by Panas, DeWecker, Knapp, Grand-Clément, Khodine, Chodin, Lee, Bell, and others. Up to the present time McKeown's following is not extensive, a fact which is not surprising when we consider the novelty and the apparently formidable nature of the method inaugurated by him.

I began to syringe out cortical remains October 17, 1888, from which date to June 4, 1890, I have made 57 extractions, using the syringe in all but 4 cases, being prevented from using it in these by rupture of the zonule either before or coincidently with the escape of the nucleus, attended with loss or threatened loss of vitreous. Of the 57 operations four were made so recently that I cannot report the visual results beyond saying that they are all successful.

The remaining 53 cases—including, to complete the record, 3 cases in which irrigation was not employed—are presented below in tabulated form.

In all the cases a preliminary iridectomy had been done. The size of the iridectomy varied from a generous coloboma when the pupil was rigid, to an approximately pure sphincterectomy when the pupil was freely dilatable.

Mode of Operating.—The instruments, after careful cleansing, were allowed to remain in absolute alcohol during cocainization of the eye, which consumed from fifteen to twenty minutes. During the same time an adequate supply of boric acid solution one-half of one per cent., made with distilled water and then boiled and filtered, was warmed, and a portion placed in a large Graefe's undine, by means of which the eye and its environment were long and thoroughly flushed, the patient being at the time encouraged to keep opening and shutting the lids and rolling the eyeball, so that the retrotarsal folds were pretty completely cleansed. During the

¹ Magnus, in v. Graefe's Arch. f. Ophth., xxxiv. 2, S. 167.

cleansing process the instruments were transferred from the alcohol to a vessel containing some of the boric solution.

The lid speculum was now applied ; and, with a Graefe knife, a large incision was made at the corneal margin (usually the lower), but entirely in corneal tissue. The laceration of the capsule was made in the shape of an inverted T with its horizontal portion near the lower margin of the lens. Immediately after the corneal incision, and again after the capsulotomy, the eyeball was freely irrigated with the boric solution. In case of hemorrhage further steps were delayed until that was checked ; and in the few cases in which blood entered the anterior chamber it was removed as thoroughly as possible by means of the syringe, either before or after the capsulotomy. The speculum was now removed and the lids gently wiped dry. The upper lid was then drawn slightly upward with the thumb, the latter being so applied that its lateral edge near the tip rested securely on the edge of the lid. Pressure being now made (through the lid) the lens was, as a rule, easily expelled. Counter-pressure on the lower lip of the wound was, however, sometimes made either directly with the tortoise-shell spoon, or with the index finger of the other hand through the medium of the inferior tarsal cartilage.

After giving the patient a moment's rest, the syringe-nozzle was then introduced, and a larger or smaller quantity of the boric solution was allowed to run in and out again, the nozzle being meanwhile moved gently from one end of the incision to the other. In general the anterior chamber was thus rapidly cleared ; but in some cases in which small masses clung tenaciously to the pupil edges, the point of the nozzle was pushed on until actual contact, aided by the continuous flow, dislodged the mass and drove it out of the chamber. Two or three drachms of the solution generally sufficed, but not infrequently an ounce was used, and in a few cases two ounces or more. In no case was there any manipulation of the cornea after the escape of the nucleus, and in no case was any instrument such as the tortoise-shell scoop permitted to touch the corneal surface for any purpose. After having examined the wound to see that no portion of iris or remnant of capsule had insinuated itself between the lips, the eye was again flushed with the solution, a drop of atropine instilled, and a cheese-cloth pressure bandage applied.

In cases in which the lens was clearly milky, or in which the suspensory ligament was suspected to be weak, or the vitreous to be fluid, the lid speculum was removed before the introduction of the cystitome. The advantages of this precaution were illustrated in several of the cases. Almost without exception the operation was performed by the searching light supplied by a portable electric lamp furnished with a condensing lens. In this manner the presence of cortical remains can probably be detected better than by any other means—certainly better than by the best daylight. The operation was always performed in the recumbent position—when feasible on the bed which the patient was to occupy—otherwise on an operating-table, from which the patient was lifted to bed by means of a sheet. The recumbent position was maintained for five or six days, permission being given to lie on the side not operated upon within an hour or two after the operation. The bandage was left undisturbed for three or four days unless there was some discomfort, which was rare. On the fifth or sixth day the bandage was finally removed and a hollow eye-shade, similar to that described by Dr. Gifford in the January number of the *Arch. of Ophthal.*, and which I have used for many years, substituted. When the healing process was slow the pressure bandage was retained until the wound was united.

The essential particulars of each case are presented in the following table :

TABLE I.

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination.	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
1	Mrs. M. W., 72; fair.	Glaucomatous, previous iridectomy, limited visual field.	Oct. 17, 1888. Cortical débris abundant after expulsion of nucleus; easily removed with a <i>compte gouttes</i> armed with curved silver nozzle. Air bubble entered chamber, and removed by continuing the irrigation; 16 days.	December 13, 1888. + 10 D. $S = \frac{20}{LX}$ Media clear. Well-marked cupping of disk.
2	Miss C. F., 55; good.	Hard, mature, normal.	Oct. 23. Irrigation by means of pipette used in Case No. 1; smooth; 12 days	February 12, 1889. + 12 \bigcirc + 1 cy. hor. $S = \frac{20}{XL}$ February 13, 1890. + 12 = $\frac{20}{XXX}$
3	Mrs. R. U., 57; good.	Hard, mature, normal.	Oct. 25. Smooth; 11 days.	January 11, 1889. + 5 5 \bigcirc + 2 5 cy. 18° $S = \frac{20}{XXX}$
4	A. McC., 72; good. Family history of mental derangement.	Hard, mature, normal.	Nov. 15. Anterior chamber irrigated with specially devised syringe; 28 hours after operation patient was discovered walking about the hospital with bandages off; delirious for 24 hours; smooth; 12 days.	March 4, 1889. + 13 D. $S = \frac{20}{XX}$
5	Mrs. C. J., 66; feeble.	Hard, mature, projection not very good.	Dec. 12. Cornea flabby and wrinkled after incision; smooth; 10 days.	January 24, 1888. + 9 D. $S = \frac{20}{LXXX}$ Media clear. Optic nerve atrophic.
6	Mrs. M. McM., 72; good.	Hard, hypermature, normal.	Dec. 14. Much cortical syringed out; smooth; 11 days.	March 3, 1889. + 11 \bigcirc + 1.5 cy. hor. $S = \frac{20}{XXX}$
7	Mrs. A. C., 64; feeble. Decided mental hebetude.	Hard, mature, apparently normal.	Feb. 15, 1889. After irrigation found posterior capsule quite opaque; removed opaque capsule through a small corneal incision on April 24; 19 days.	Soon after operation about $\frac{20}{CC}$. June 5, 1889 (after secondary operation). + 10 \bigcirc + 1.5 cy. hor. $S = \frac{20}{XL}$
8	P. D., 58; good.	Hard, mature, normal.	March 1. Smooth; 10 days.	March 26, 1889. + 12.5 $S = \frac{20}{XXX}$
9	F. B., 55; good.	Complicated; partly transparent; always near sighted; normal.	March 1. Syringe brought out considerable quantity of soft cortex; smooth; 10 days.	May 11, 1890. First appearance since operation. He says he could see to read the "newspaper through even by lamplight" without glasses for 8 months after the operation. In Nov 1889, he received a violent blow on the eye, and has not seen well since, though he is able to work. To-day $S = \frac{20}{C}$. No glass helps. Large posterior staphyloma; media clear.

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination.	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
10	Mrs. W. M., 62; feeble.	Hard, hypermature, projection poor.	March 15. Smooth; 12 days.	May 25, 1889. + 10 S. = $\frac{8}{c}$. Media perfectly clear; pronounced atrophy of disk. Sept. 3, 1889, S = $\frac{15}{cc}$
11	Mrs. J. W., 67; fair.	Hard, mature, normal.	March 15. Smooth; 21 days.	May 21, 1889 + 12 D. S. = $\frac{20}{xx}$
12	Mrs. J. L., 64; good.	Hard, mature, normal.	April 2 Considerable cortical remains; small masses persistently adhered to pupil margins, and detached by touching with syringe nozzle; smooth; 14 days.	May 23, 1889. With + 11 \odot + 1.5 cy. 5° S. = $\frac{20}{xx}$ Mar. 6, 1890. Cannot see so well; has been very ill for several weeks. S. = $\frac{20}{c}$. Capsule was slightly wrinkled; discission, May 14, 1890. + 10 + 1.5 cy. hor. S. = $\frac{20}{xl}$ Slight opacity of capsule remains.
13	Mrs. B. G., 71; good.	Hard, hypermature, normal.	May 6. Smooth; 14 days.	June 21, 1889. + 9 \odot + 3 cy. 8° S. = $\frac{20}{xl}$
14	S. J., 70; good.	Hard, mature, normal.	May 9. Smooth; patient became delirious 12 hours after operation, and remained so about 24 hours; 16 days.	July 7, 1889. + 10.5 S. = $\frac{20}{xx}$
15	S. W., 38.	Soft, traumatic; extensive anterior synechia.	May 10. Iritomy with De Wecker's scissors; soft lens tissue removed with syringe.	July 1, 1889. + 11 S. = $\frac{20}{lx}$ Some opacity of capsule.
16	Mrs. S. B., 65; fair.	Hard, mature, normal. (Other eye enucleated after cataract operation by another surgeon)	July 9. Smooth; 12 days.	January 9, 1890. + 11 D. S. = $\frac{20}{xxx}$
17	W. H., 52; good.	Soft, hypermature, good.	Oct. 2. Nucleus small, most of lens remaining in anterior chamber before irrigation.	April 2, 1890. + 10 D. S. = $\frac{20}{lxxx}$
18	Mrs. S., 74; good.	Cat. lactea good.	Oct. 6. Lens matter like whey; small nucleus; smooth; 16 days	November 12, 1889. + 10 D. S. = $\frac{20}{xxx}$
19	G. P., 73; good.	Hard, mature, normal.	Oct. 9. Smooth; 10 days.	November 26, 1889. + 11 \odot + 2 cy. 170° S. = $\frac{20}{xx}$
20	M. V., 60; good.	Fundus reflex good through periphery S. = $\frac{2}{cc}$ projection normal.	Oct 12. After expulsion lens remarkably transparent at margins, clear lens matter easily syringed out; smooth; 10 days.	November 16, 1889. + 11 \odot + 2.25 cy. hor. S. = $\frac{20}{xx}$

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination.	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
21	W. B., 49 ; good.	Right eye. Soft, mature, normal.	Dec. 3. Cortical abundant ; syringed more than 2 ounces boric solution into chamber ; smooth ; 11 days.	December 30, 1889. + 5 C + 3 cy. hor. $S. = \frac{20}{xxx}$ April 26, 1890. + 6 C + 1.25 cy. 62° $S. = \frac{20}{xx} +$
22	J. A. D., 56 ; feeble.	Hard, mature, normal. (Other eye removed for irido-cyclitis after cat. extraction by another operator.	Dec. 6 Operation clean and satisfactory. Night of eighth day struck his eye during sleep ; mild attack of iritis, which yielded to treatment in a few days ; 15 days.	January 9, 1890 + 6 5 C + 2 cy. hor. $S. = \frac{20}{xxx}$ April 17, 1890. + 7 C + .5 cy. vert. $S. = \frac{20}{xx} -$
23	Miss E. D., 50 ; good.	Right eye. Soft mature, normal.	Dec. 9. Smooth ; 12 days.	January 11, 1890. + 11 + 2.5 cy. hor. $S. = \frac{20}{LX} -$ April 8, 1890 Discission of capsule. May 26, 1890. + 11 + 2 cy. hor. $S. \frac{20}{xxx}$
24	Mrs. S. P., 70 ; feeble.	Hard, mature, normal.	Dec. 12. Smooth ; 9 days.	April 2, 90. + 11 + 2 cy. 138° $S. = \frac{20}{xx} -$
25	Mrs. F. G., 54 ; good.	Soft, hyper-mature, normal.	Dec. 16. Capsule very opaque, except small point below ; smooth ; 17 days.	April 23, 1890. + 8 S. = $\frac{10}{cc}$
26	R. J., 71 ; good.	Hard, hyper-mature, normal.	Dec. 16. Smooth ; 8 days.	March 13, 1890. + 9 + 1 cy. hor. $S. = \frac{20}{XL} +$ Media absolutely clear ; nothing abnormal in fundus. Says he "can see as well as ever he did in his life."
27	Mrs. M. A., 65 ; good.	Hard, mature, normal.	Dec. 20. Smooth ; 13 days.	February 28, 1890. + 9 + 2 cy. 178° $S. = \frac{20}{xxx}$
28	W. S., 55 ; good.	Hard, mature, normal.	Dec. 21. Smooth ; 12 days.	March 31, 1890. + 10 = $\frac{20}{xx}$
29	P. V. J., 53 ; good.	Completely fluid ; good.	Jan. 1, 1890. On using cystitome liquid lens matter gushed out followed by vitreous which was also fluid ; <i>syringe not used</i> ; healing slow ; 23 days.	March 14, 1890. + 8.5 + 2 cy. 80° $S. = \frac{20}{XL}$
30	E. D., 56 ; good.	Soft, mature, not tested.	Jan. 1. Operation satisfactory ; iritis ninth day from exposure to a cold draught ; recovery in 12 days. Jan. 25th, another attack from same cause ; recovery in two weeks. For safety retained in hospital till 54th day. No synechiæ.	March 18, 1890. + 9 + 1.75 cy. hor. $S. = \frac{20}{LX} +$ Media clear ; nerve decidedly atrophic ; pupil free.
31	Mrs. W. N., 56 ; feeble.	Hard, mature, normal.	Jan. 1. Smooth ; 12 days.	April 3, 1890. + 12 + 1 cy. hor. $S. = \frac{20}{xx}$

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination.	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
32	G. W. L., 48; good.	Soft, mature.	Jan. 4. Operation satisfactory. Jan. 5, 24 hours after operation, found patient with bandage off; eyes rebandaged. Two hours later patient again removed bandage, stole out of hospital and went to his home four miles away, walking much of the distance; 1 day.	April 23, 1890. + 11 + 1 cy. vert. $S. = \frac{20}{xxx} +$
33	Miss M. S., 40; good.	Soft, hypermature.	Feb. 11. Nucleus 5 mm. in diameter; cortex liquid; smooth; 9 days.	February 24, 1890. + 8 D. $S. = \frac{20}{cc}$ Capsule clear. Floating opacities in vitreous.
34	T. R., 76; good.	Hard, hypermature (7 yrs. old), normal.	Feb. 22. Vitreous escaped with lens; <i>syringe not used</i> ; smooth; 11 days.	April 24, 1890. + 11 + 1 cy. hor. $S. = \frac{20}{LX}$ Media transparent.
35	Mrs. A. J., 74.	Right eye. Hard, mature, normal.	Feb. 22. Operation satisfactory, though patient was very restless and almost unmanageable; smooth; 16 days.	March 31, 1890. + 11 $S. = \frac{20}{LX} -$
36	P. G., 54; good.	Soft, mature, normal. (Stricture nasal duct treated before operating on cataract.)	Feb. 28. Smooth; 13 days.	April 15, 1890. + 9 + 1 cy. hor. $S. = \frac{20}{xxx} +$ May 13, 1890. + 9 + 1.5 cy. 10° $S. = \frac{20}{xv}$
37	A. K., 68; fair.	Hard, hypermature; projection poor. Other eye, light perception extremely feeble.	March 4. Patient nearly completely deaf and of feeble intelligence; eyeball rolled incessantly, still operation was completed pretty satisfactorily; but before the bandage was applied patient suddenly and violently snapped his eyelids together rupturing capsule or zonule, and forcing fluid vitreous from the wound. Healing process smooth; 16 days.	March 20, 1890. $S. =$ light perception; vitreous muddy; very small retinal detachment below and outward.
38	Mrs. M. E. W., 38; good.	Right eye. Soft, hypermature (6 years), normal.	March 11. Much cortical syringed out; 11 days.	April 26, 1890. + 7.5 + 3.5 cy. 8° $S. = \frac{20}{xx} -$
39	W. B., 49; good.	Left eye. Soft, mature, normal.	March 26. Abundant cortical syringed out; smooth; 11 days.	May 9, 1890. + 6 + 2.25 cy. 172° $S. = \frac{20}{xii}$
40	E. G., 61; good.	Complicated, hypermature, corneal opacities from old ulcers.	March 27. Healing rather slow; 13 days.	April 18, 1890. + 11 + 3.5 cy. hor. $S. = \frac{20}{LX}$
41	Mrs. L. L.	Hard, mature, normal.	April 4. Opaque capsule left. April 9, mild attack of iritis with no pain and but slight congestion; pupil good size, but small synechia at upper part.	April 24, 1890. + 10 + 1.5 cy. hor. $S. = \frac{20}{LX} -$ May 12, 1890. + 9.5 + 5 cy. hor. $S. = \frac{20}{XL}$

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination.	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
42	J. V., 58 ; feeble.	Left eye. Opaque in centre, but translucent in periphery. Duration many years. Right eye in 1886 showed incipient cataract and marked signs of old choroiditis.	April 6. Left eye. Nucleus small ; syringed out large quantity of transparent cortical ; smooth ; 9 days.	June 7, 1890. + 12 + 1 cy. hor. S. = $\frac{20}{xx}$
43	W. K., 52 ; good.	Soft, mature, normal,	April 6. In using cystitome this instrument, acting as a hook, tore off anterior capsule, leaving it attached just inside of wound ; nucleus small ; large quantity of cortical syringed out ; finally, reflected ant. capsule removed with iris forceps ; smooth ; 9 days.	May 13, 1890. + 9 + 1.25 cy. hor. S. = $\frac{20}{xx}$ —
44	J. G., 70 ; good.	Hard, partly transparent ; no change for several months ; normal.	April 8. Smooth ; 9 days.	April 26, 1890. + 10 + 1.25 cy. hor. S. = $\frac{20}{xl}$ — Capsule perfectly clear ; several small brownish patches on retina in macular region
45	Mrs. A. M., 65 ; good.	Hard, mature ; projection poor ; patient greatly addicted to alcohol.	April 8. Smooth ; 11 days.	April 25, 1890. + 10 S. = $\frac{20}{lx}$ — Media perfectly clear ; decided bluish atrophy of disk.
46	A. K. E., 64 ; good.	Cat lactea ; duration at least 10 yrs. ; normal.	April 11. The instant cystitome touched capsule, most of lens spurted out in shape of thin whey-like fluid ; nucleus, 3 mm. in diameter, retreated into upper part of chamber, but was slowly coaxed down by manipulating upper lid ; pupil made jet black instantaneously by use of syringe ; smooth ; 9 days.	May 6, 1890. + 9 S. = $\frac{20}{xx}$ —
47	J. C., 60 ; feeble. Face deeply furrowed and covered with eczema.	Hard, mature, normal.	April 14. Eye well in a week ; patient attacked with bronchitis on eighth day. Discharged cured ten days later.	May 12, 1890. + 10 + 1 cy. hor. S. = $\frac{20}{xl}$ +
48	Mrs. M. C., 82 ; very feeble in body and mind.	Hard, mature, doubtful. Other eye, no light perception.	April 16. Operation satisfactory, and everything favorable till twelfth day, when slight congestion appeared with a burning sensation but no pain. Eight days later eye clear and pupil large, but a slight adhesion at upper papillary margin ; 20 days.	May 31, 1890. 10 D. S. = $\frac{20}{cc}$ — Media perfectly clear ; nerve markedly atrophic.
49	Mrs. L. M., 61 ; not good.	Hard, hyper-mature, normal.	April 19. Incision completed with more than usual care, and without dragging ; lens came well forward. On gently introducing cystitome lens retreated upward. A little tentative expulsive movement caused vitreous to appear in wound. With wire scoop delivered cataract, which was large and very hard and dark ; small bead of vitreous escaped ; syringe not used ; 15 days.	May 14, 1890. + 11 + 1 cy. hor. S. = $\frac{20}{xx}$ —

No.	Name, Age, General Health.	Quality of Cataract, Functional Examination	Operation, Incidents, Course of Healing Process, Duration of Treatment.	Resulting Vision.
50	Mrs. M. C., 62; fair.	Nucleus and posterior capsule opaque; other parts of lens translucent; condition stationary for years; very poor projection; eye never good.	April 21. Sockets remarkably deep Patient greatly agitated; eyes rolling constantly. Lens on being expelled was quite large and quite translucent, except in centre and at posterior pole. Syringe not used with usual freedom on account of nervousness of patient Slight catarrhal conjunctivitis in both eyes; 8 days.	May 11, 1890. $+ 8 \ S = \frac{10}{CC}$ Lower half of capsule clear. Part just above centre opaque; floating opacities in vitreous. Large patch of atrophy of choroid below and to outer side of macular region.
51	H. B. S., 75; good.	Hard, partly translucent; stationary; good.	April 28. Lens on expulsion amber colored, but transparent in periphery. Some cortex left in chamber easily and quickly expelled by syringing. 8 days.	May 26, 1890. $+ 8 + 3.5 \text{ cy. hor.}$ $S. = \frac{20}{XX} -$
52	J. E., 75; good.	Hard, mature, good.	May 12. Nucleus dark; unusual quantity of cortical syringed out; some catarrhal conjunctivitis; 12 days.	June 9, 1890. $+ 10 + 2 \text{ cy. hor.}$ $S. = \frac{20}{LX}$, and improving. Slight opacity of capsule, apparently diminishing.
53	Mrs. M. B., 68; good.	Hard, mature, normal.	May 26. Smooth; 12 days.	June 9, 1890. $+ 10 + 1 \text{ cy. hor.}$ $S. = \frac{20}{XL}$ Capsule slightly opaque; sight improving.

TABLE II.—SUMMARY OF VISUAL RESULTS.

$\frac{20}{XII}$	1 case	$\frac{20}{XXX}$	9 cases.	$\frac{20}{CC}$	2 cases.
$\frac{20}{XV}$	1 "	$\frac{20}{XL}$	9 "	$\frac{15}{CC}$	1 case.
$\frac{20}{XX} +$	1 "	$\frac{20}{LX}$	8 "	$\frac{10}{CC}$	2 cases.
$\frac{20}{XX}$	6 cases.	$\frac{20}{LXXX}$	2 "	0	1 case.
$\frac{20}{XX} -$	9 "	$\frac{20}{C}$	1 case.	Total	53 cses.

Reviewing the cases detailed above we may consider :

A. Accidents and abnormalities during operation.

- (1) Air entered anterior chamber in one case (No. 1), owing to imperfect instrument. Result, good.
- (2) Vitreous escaped in four cases; in three (Nos. 29, 34, and 49) immediately after exit of lens, so that the syringe was not used. In Case No. 29 the lens, which was wholly fluid, gushed out at touch of cystitome, followed by vitreous. In Case No. 49 the lens

was large and nearly black. Zonule ruptured during corneal incision, which was made slowly. On attempting expulsion vitreous presented in wound. Extraction effected easily with wire scoop, followed by small bead of vitreous. In Case No. 34 moderate amount of vitreous followed lens. In the fourth case (No. 37) the patient was almost stone deaf, and, beside, excessively restless. Nevertheless, operation proceeded smoothly until the bandage was about to be applied, when a most violent orbicular spasm ruptured the posterior capsule and forced out a considerable quantity of watery vitreous, producing the only case of failure in the series. The three other cases had a good result.

(3) Lens almost completely liquid in three cases (Nos. 18, 33, and 46) and completely so in one case (No. 29). Results in all, good.

(4) Cataract more or less translucent in five cases (Nos. 20, 42, 44, 50, and 51). Results in four, good. In one (No. 50) only moderate, owing to antecedent disease of the vitreous and fundus. In this case the prognosis was bad, although an accurate diagnosis was impossible; but my habit is to operate on all cases in which there is a hope (happily realized in this instance) of even slightly ameliorating the patient's condition.

B. Complications during the healing process.

(1) Slow healing of wound in two cases (Nos. 29 and 40). In the first there was escape of vitreous, preventing the use of the syringe. Vision $\frac{20}{XL}$. In the second, the slow healing may have been due to the nutrition of the cornea being interfered with by old ulceration which had led to corneal opacities. Vision $\frac{20}{LX}$.

(2) Delirium in two cases (Nos. 4 and 14), perhaps from cocaine. One of them (No. 4) was eccentric, and family mental history not good. Results, $\frac{20}{XX}$ and $\frac{20}{XX}$ —.

(3) *Iritis* in four cases (Nos. 22, 30, 41, and 48). As this was really the only important complication observed during treatment, the cases may be analyzed in detail.

Case No. 22.—Operation smooth. Syringe used freely. Eighth day, condition of eye perfect. That night patient suddenly awoke in the act of striking the eye. Next day pain and other symptoms of iritis, which subsided in

a few days, leaving no adhesion. Vision, $\frac{20}{XX}$ —. The other eye had been enucleated by myself for irido cyclitis following cataract extraction by another surgeon.

Case No. 30.—Operation smooth. Syringed. On ninth day eye looked well. Carelessly exposed himself to cold draught from open window. Next day globe congested and soon livid and chemosed. Iritis subsided in twelve days. Several days later exposure to cold draught from a badly constructed door brought on another attack. Recovery in about two weeks. No synechia. Vision, $\frac{20}{LX}$ +

Case No. 41.—Very opaque capsule left at operation. On fifth day I observed evidences of iritis, but they were so mild that patient was unaware of anything being wrong. Result, small synechia above. Capsule clear in limited area below. Vision, $\frac{20}{LX}$.

Case No. 48.—Health and mind feeble, and functional examination difficult. Operation smooth. Everything favorable till twelfth day, when slight congestion was noticed. No pain, but some burning complained of. The iritis subsided in about a week, leaving a small synechia at upper part. Rest of pupil, which was large, was free, and capsule, except at point of adhesion, perfectly transparent. Vision, $\frac{20}{CC}$. Marked atrophy of disc.

Of these four cases of iritis, two were apparently caused by exposure to cold, and one was due to a blow. The remaining one was doubtless directly connected with the operation. All but one were mild, and probably none had any serious effect on the resulting vision.

In the case in which the operation failed there was no inflammatory symptom. The wound healed promptly and kindly, and in a week the eye, externally, presented all the appearances of a successful extraction. There was in the whole series no case of irido-cyclitis or of suppuration, and, excepting in two of the iritis cases, no serious discomfort was complained of.

In view of the progress made in recent years, perhaps the time has arrived when we should no longer be content with the old idea of a successful cataract operation, viz., one which in a general way restores sight, but should endeavor to procure the highest degree of acuity of vision attainable in each case. In order to determine the methods by which this result may be most easily arrived at, it is desirable not merely to compare the final visual results reached under different methods, but to inquire into the circumstances under which, in each case, these results were brought about. No

surgeon operates on a totally blind eye, *i. e.*, every man “selects his cases;” but, owing to differences of temperament and other causes, this selection is made by different operators, and even by the same operator at different periods, according to rules which are far from uniform. For this reason, two men exhibiting equal skill and pursuing the same method may obtain visual results which are widely different.

It may be assumed that the best method of operating for cataract is the one which, other things being equal, enables us most completely to eliminate all obstructions to vision referable to the lens; in other words, to make the operation surgically complete. As a contribution to this part of the subject the following table has been prepared, giving, in all of my cases showing $\frac{20}{XL}$ or less, the causes, so far as ascertained, of the imperfect vision.

TABLE II.—SUMMARY OF CASES OF $\frac{20}{XL}$ AND UNDER WITH CAUSES.

Vision.		CAPSULE CLEAR.									Capsule opaque.	Total.
		Atrophy of nerve.	Atrophy from glaucoma.	Choroidal atrophy.	Staphyloma posticum.	Retinal disease.	Opacities in vitreous.	Escape of vitreous.	Opacity of cornea.	Undetermined, irregular astigmatism, etc.		
$\frac{20}{XL}$	. . .	...	...	...	...	1	...	1	...	3	4	9
$\frac{20}{LX}$	. . .	2	1	...	...	...	...	1	1	1	2	8
$\frac{20}{LXXX}$	. . .	1	...	...	...	...	...	...	...	1	...	2
$\frac{20}{C}$	. . .	...	...	...	1	...	...	...	...	...	...	1
$\frac{20}{CC}$	. . .	1	...	...	...	...	1	...	...	...	...	2
$\frac{15}{CC}$	. . .	1	...	...	...	...	...	...	...	...	...	1
$\frac{10}{CC}$	. . .	...	...	1	...	...	...	...	...	...	1	2
0	. . .	...	...	...	...	...	...	1	...	...	...	1
Total . .		5	1	1	1	1	1	3	1	5	7	26

Thus, of 53 cases operated upon, 7, or $13\frac{2}{10}$ per cent., have been thus far left with opacity of the capsule, whereas in 45 cases (ex-

cluding the case of failure, and including the cases with $\frac{20}{XXX}$ and better)—*i. e.*, in $84\frac{9}{10}$ per cent. the operation was surgically complete.

Secondary operations.—The statistics presented above show the results obtained without any secondary operation on the capsule except in three cases (Nos. 7, 12, and 23). In the first an opaque capsule was removed through a small corneal incision, raising the vision from $\frac{20}{CC}$ to $\frac{20}{XL}$. In the second discission raised the vision from $\frac{20}{C}$ to $\frac{20}{XL}$, but the operation was incomplete, and slight opacity still remains. In the third the sight was improved by discission, from $\frac{20}{LX}$ — to $\frac{20}{XXX}$. In other words, excluding the case of failure, 42 cases (including all but one of the cases of $\frac{20}{XXX}$ and better)—*i. e.*, $79\frac{4}{10}$ per cent. of all the cases operated upon—required no secondary operation.¹

General remarks and conclusions.—There are several points in regard to the above reported series of cases that seem worthy of note :

1. The absence, excepting in one case (No. 41), of inflammation or irritation directly referable to the operation; and the absence, also, excepting in one case (No. 30), of inflammation from any source serious enough to cause anxiety.

2. The large proportion of cases in which a high degree of visual acuity was obtained.

3. The large proportion of cases in which the operation was surgically complete—*i. e.*, in which no capsular opacity remained to be treated by secondary operations. (I make no note of the absence of suppurative inflammation, because purulent processes, as remarked by Sattler,² Knapp,³ and others, are of late becoming more and more rare.)

These advantages I cannot but think attributable, in a large degree, to the fact of the anterior chamber being so thoroughly

¹ It is probable that a number of these cases will in time develop "wrinkled capsule," and so require surgical interference. If so, such changes will be put on record when the opportunity presents itself.

² Quoted by Knapp, *Arch. of Ophth.*, vol. xvii. p. 69.

³ *Ibid.*

cleared of residual cortex. No matter whether we agree with DeWecker,¹ that inflammation after cataract extraction is due to sepsis conveyed through a migration cicatrix (*cicatrice à migration*), or with Meyer,² that the sepsis is sometimes endogenous, or whether we hold that many cases of inflammation, whether purulent or non-purulent, may be purely traumatic, it must be generally admitted that, whether simply as foreign material, or as a nidus for microbic multiplication, cortical remains may act as a predisposing cause of inflammatory action. It appears reasonable, also, to suppose that they may, by adhering to the capsule, cause or increase its opacity, and thus partially frustrate the object of the operation.

From all points of view, then, it seems proper that we should seek the means by which lenticular débris can be most gently, quickly, and thoroughly removed. My own belief is that manipulation of the cornea is inadequate—may, when prolonged, be injurious—and that the end in view is best attained by irrigation. In addition to thoroughly evacuating the anterior chamber, the syringe gently replaces prolapsed iris, and completely cleanses the lips of the wound, thus securing perfect coaptation and rapid healing, and, incidentally, preventing the entrance of germs.

From what has preceded, it is evident that I do not regard the injection of a few drops of an antiseptic solution, in order to sterilize the contents of the anterior chamber, as fulfilling all the requirements. It may be doubted, without disrespect to the distinguished men who make use of this procedure, whether it accomplishes even the limited object aimed at; for an antiseptic, to be effective, must surely be dangerously irritating to the delicate structures in the interior of the eye.

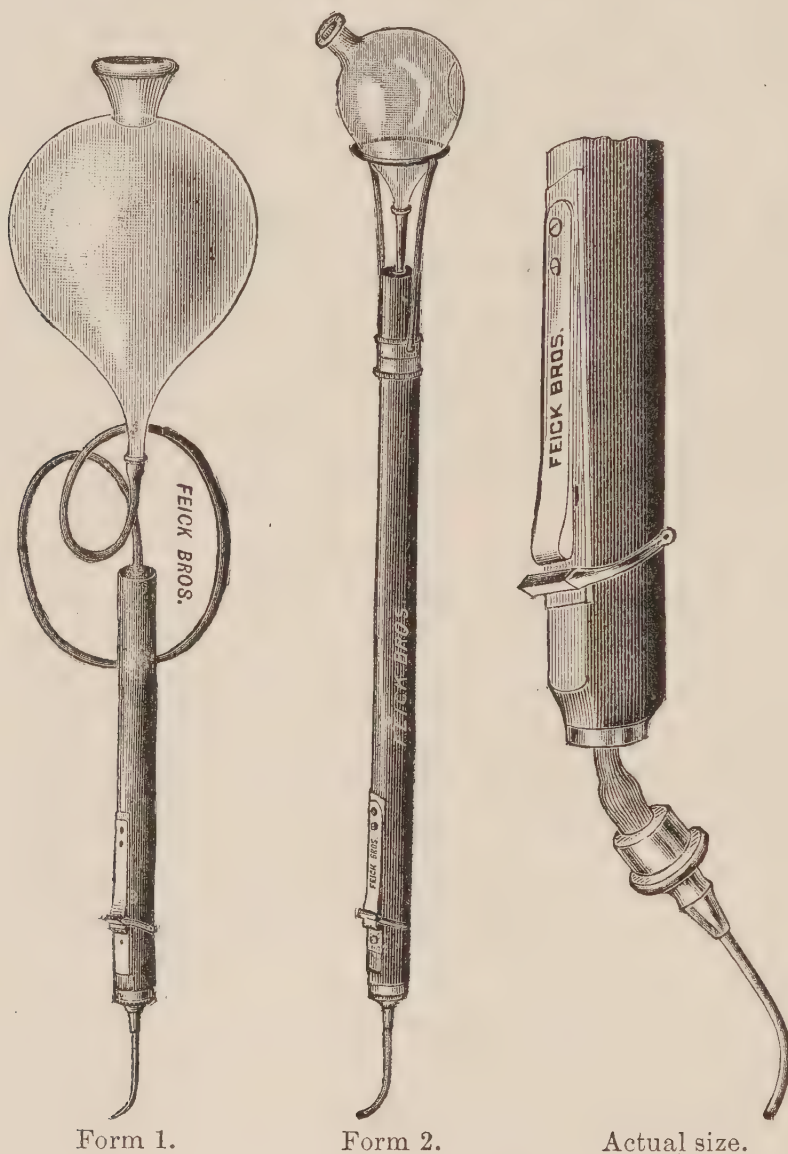
But, in point of fact, antiseptics in surgery tends more and more to be replaced by asepsis. Germs are now flooded out instead of being destroyed *in situ*. I believe the crowning glory of our era, in so far as surgery is concerned, to be the development of the science and art of cleanliness. In accordance with this view, the solution I use is not, strictly speaking, antiseptic. Practically, it consists of boiled distilled water containing just enough boric acid to prevent the injurious effects which have been found, by myself and others, to follow the use of water alone.

In order that irrigation of the anterior chamber may be accom-

¹ Annales d'oculistique, ci. p. 168.

² Ibid., cii. p. 134.

plished effectively and safely, it is important to employ a suitable instrument. At the last meeting of the American Ophthalmological Society I read a paper on this subject,¹ and described a syringe which consisted “essentially of a bit of black rubber tubing with a curved flat gold nozzle at one end, and a small metal reservoir at the other.” The tubing passed through a hollow hard-rubber



handle, in which was fixed a short piston controlled by the index-finger, and serving, by pressure on the rubber tubing, to stop or retard the current. Soon after that meeting, in order to be able to dispense with an assistant, as well as to secure a uniform pressure, I had the instrument made in the form in which you see it. The reservoir, which is of glass, is attached to the upper end of the

¹ Trans. American Ophth. Society for 1889, p. 341.

handle, and will hold about an ounce. This is sufficiently large, because, even if two or three times this quantity of fluid is required, the patient will be benefited by the momentary respite obtained while the reservoir is refilling; and the objections made to a second or third introduction of the nozzle are, in my opinion, entirely groundless. If, however, a larger reservoir is desired, and an assistant is available, the necessary change in the form of the instrument is easily effected by substituting a longer piece of rubber tubing.¹

This syringe, as modified, has been used in the great majority of the cases reported in this paper; and, from experience during the year just passed, I am in a position to reiterate, with confidence, the following statements made in the article referred to:

"1. As there is no backward flow, it (the syringe) has no tendency to become septic in use, except at the point of the nozzle, and the latter can be readily pulled off and thrown into boiling water or alcohol. If the purity of the other parts of the apparatus is suspected, it is easy to place the reservoir in boiling water, and to replace the old rubber tubing with a new piece.

"2. This instrument can always be depended upon to work smoothly.

"3. It is held like a penholder, and is as easily and securely handled.

"4. As the ejecting force is proportional to the height of the column of the liquid, it is, of course, under absolute control. . . . Should a *per saltum* movement be desired, this can be effected . . . by intermittent pressure on the short piston.

"5. It goes without saying, that in using this syringe there is no possibility of the entrance of air into the eye."

The instrument is made by Feick Brothers, surgical instrument makers, of Pittsburg, Pa.

¹ The syringe is made in such a way that Forms 1 and 2 are quickly interchangeable. Thus the small reservoir may be removed from Form 2, and the metal frame-work slipped off. All that remains, then, is to insert the small hard-rubber nozzle (which will be found at the lower end of the tubing belonging to the large reservoir) into the tubing which remains in the handle. The large reservoir can be fixed to an upright post attached to the bedside, and the height regulated by a set-screw.

ON THE MANAGEMENT OF OBSTINATE DROPSIES.

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A SUCCESS greatly beyond what I expected in the management of certain cases of obstinate dropsy, mainly instances of incurable kidney disease, but even better calculated to succeed in cardiac disease with renal sufficiency relatively maintained, has led me to wish to announce the method pursued, although it involves the use of no drugs that are new or other measures that are novel. My paper will be illustrated by three cases; indeed, may be said to consist of these with comments. All three may be said to have been water-logged in the highest degree; and there was large abdominal dropsy requiring tapping from one to five times. All had been treated with the usual diuretics and purgatives to no purpose; indeed, the symptoms kept on increasing.

The first patient was a man, aged forty years, who had been, for several years, superintendent of an Indian school in Arizona. Until June 16, 1889, he regarded himself as in good health. About this time he took a long tiresome wagon journey with General Armstrong, and on his return noticed some swelling in his feet. This rapidly increased until the anasarca became general despite all treatment, and he came East. I first saw him August 15th, with Dr. G. C. Laws, of Paulsboro, N. J. There was general anasarca and large abdominal dropsy, and I at once drew off a gallon of water from the peritoneal sac. Examination of the urine revealed much albumin, numerous dark, granular casts, and compound granular cells. There was evident chronic parenchymatous nephritis. He was sent to his home in a neighboring town, digitalis being ordered in full doses. He bore the journey of thirteen miles well. He was put to bed between blankets, which produced copious sweating. There was, however, no improvement, and in a few days the abdomen had refilled. Desiring to make use of some treatment totally different from what he had pursued, I then ordered him to be placed upon a pure skimmed-milk diet, directing that he should have two ounces every two hours through-

out the day, from 7 A. M. to 9 P. M. All drugs were discontinued, but he was permitted to have some whiskey, if needed, as he felt very weak. This was on the second day of September, and I did not hear from him until October 25th, when Dr. Laws reported that Mr. G. had greatly improved under the skimmed-milk diet. More recently, however, he thought that improvement had ceased, and that liquid was again accumulating in the abdominal cavity as well as in the subcutaneous connective tissue generally. He was passing, however, three pints of urine in twenty-four hours, and the albumin had greatly diminished. I then added to the milk diet spartein in doses of one-fourth of a grain three times a day. On the 2d of November I was much surprised to see Mr. G. walking into my office, having come from his home that morning in the train. He was then without dropsy, but reported that his legs became swollen toward evening, and that he was up all day. Under the use of spartein and milk the urine had increased to sixty-five and seventy-five ounces in the twenty-four hours. Careful examination failed to discover casts, although the urine still contained one-seventh its bulk of albumin. He was directed to continue the spartein in one third grain doses as required to keep up the flow of urine; also to continue the milk a while longer until the dropsy had completely disappeared, after which he was to be permitted a diet a little more liberal.

Exactly one month later he called again, looking and feeling well. He was passing from two to three quarts of urine daily, and living largely on milk, but he occasionally took a baked potato and a boiled onion. He had tried oatmeal, and was under the impression that it increased the amount of albumin in the urine. He had been taking one-third of a grain of spartein three times a day with occasional interruptions. He was then on his way to Florida, where he was to spend the remainder of the winter.

The patient called again on the 15th of April apparently in perfect health, having just returned from Florida. He had taken no medicine, but had kept pretty closely to skimmed milk, having, however, occasionally taken a baked potato and a soft-boiled egg. The urine still contained a small quantity of albumin, but no casts were found.

The next case was a more intractable one, and ultimately proved fatal, although his life was prolonged long after it had been despaired of, illustrating what may be accomplished by treatment:

H. H., a man, aged forty-three years, was admitted to my wards in the Philadelphia Hospital on the 13th of April, 1889, with the primary diagnosis of acute bronchitis. He had been in the English army in India, and came to this country in 1872. Since his arrival here he has been working as a carriage finisher. He has been dissipated, often going on sprees for three or four days at a time. It was discovered very soon after his admission that he had albuminuria, but his salient symptoms were those of an obstinate bronchitis, to which was soon added a pleurisy. He gradually recovered from his cough, but œdema of the extremities soon set in, and gradually ascended. Simultaneously the albuminuria increased, while granular and hyaline casts

were found in his urine. The anasarca became general, and the effusion invaded the pleural sacs and abdominal cavity. He was treated actively by cupping and blistering, the use of digitalis, strophanthus, spartein, pilocarpin, and purgatives, by Hay's treatment with concentrated solution of magnesium sulphate in connection with limited ingestion of fluids, and by hot-air baths. Paracentesis of the chest was performed several times. Paracentesis abdominis was attempted, but failed, because of the thickness of the abdominal walls, which were in a state of myxœdema. Notwithstanding these decided measures, no advance was made; indeed, he was slowly losing. He was orthopnœic and the picture of distress. About the 1st of August paracentesis thoracis was repeated, and I left for my vacation, never expecting to see him again. I, however, directed, before leaving, that he should be placed on a skimmed-milk diet. I resumed my wards on the 11th of September, and was greatly astonished to find him not only alive, but greatly improved in his condition; there was still swelling in the arms and legs, but they were much better. He was passing about 40 ounces of urine. He had been under skimmed-milk throughout. He had, however, every three or four days been sweated by a method not novel, but which I have found very satisfactory. Large bottles—wine bottles are of the best size and shape—are filled with hot water, surrounded with cloths wrung out in hot water, and applied to the surface of the body wherever possible. I now, October 8th, added to his treatment spartein in doses of $\frac{1}{2}$ grain three times a day. It will be remembered that this drug had previously been given without effect, not, however, in connection with an exclusive milk diet, which was continued in the quantity of about 42 ounces daily. It again appeared without effect, and on the 14th was substituted by the infusion of digitalis. The quantity of urine ranged from 32 ounces to 44 until the 25th, when it rose to 55 ounces, and continued to rise with fluctuations until 69 ounces were reached. Then there was some diminution, but the quantity continued free until about the 1st of November, when it began again to decline until November 15th, when but 20 ounces were passed. Spartein was then again resorted to, and at once the urine rose rapidly and remarkably. Thus, on the 16th there were 20 ounces; on the 17th, 33; on the 18th, 40; on the 19th, 50; on the 20th, 70; on the 21st, 128; on the 22d, 169; on the 23d, 155; on the 24th, 114; on the 25th, 148; on the 26th, 149. On the 26th the drug was discontinued, when at once there began a gradual fall, the quantity being, however, still free. On the 5th of December, the quantity being 121 ounces, the infusion of digitalis was again commenced; the urine remained over 100 ounces until December 30th. During this time he ingested not more than 45 ounces of milk. Of course, the dropsy gradually diminished, and his general condition greatly improved. His legs, which had become ulcerated from the excoriating effect of the leakage from the burst tissues, gradually healed, although the skin remained very hard. He was up almost the whole day, moving all over the wards in a wheel-chair. A drawback occurred about the middle of November, when he had a severe chill, and there developed some cerebral symptoms which suggested uræmia. This was the day before the urine reached the low point referred to of 20 ounces, and on the day of the chill there were but 40 ounces. Purgatives and vapor baths were given for a

couple of days with the spartein, and as the urine increased the uræmic symptoms rapidly subsided, and by the 23d they had disappeared. The fluid persisted most stubbornly in the pleural sacs, and he was again aspirated on December 22d.

On the 30th of December I ceased my service in the hospital, and although the notes, which were placed at my disposal, indicate a free discharge of urine up to the middle of January, he died about this time.

Necropsy.—The post-mortem examination was interesting. The notes state that he was a man of extremely large size, weighing about 250 pounds. The abdomen was much distended, and upon being opened was found to contain many quarts of serous fluid. The right pleural cavity was almost filled with bloody fluid—about $2\frac{1}{2}$ quarts—the lung being collapsed to the size of a man's fist. The left pleural sac contained a small amount of fluid. The pericardium contained but little fluid, and the heart was much hypertrophied, weighing 20 ounces. The kidneys are noted as slightly enlarged, but as each weighed only $6\frac{1}{2}$ ounces they cannot be regarded as enlarged. I should consider them rather below the normal size for a man of that weight. The capsule was but slightly adherent. The description on section is not definite. The note says, "Kidney substance was much wasted, only about $\frac{3}{4}$ of an inch left." Presumably this refers to the cortex, and if this is the case $\frac{3}{4}$ of an inch of cortex cannot be regarded as wasted. It is full width. I was informed, in fact, by one of the resident physicians present at the autopsy that there was quite a discussion as to whether the cortex was actually reduced or not. Nothing is said as to color, or, indeed, as to any appearance. Nor was any microscopic examination made. The probabilities are that the case was one of chronic parenchymatous nephritis in the stage of beginning contraction, and illustrates what is so often seen in renal disease, an apparent disproportion between the gravity of symptoms and the degree of lesion.

The third case, also a desperate one, was that of a young man, twenty-eight years old, admitted to the Hospital of the University of Pennsylvania February 3, 1890. He was a stonemason, and had regarded himself as in perfect health until November 14, 1889, when, after a drive of eight miles, he ate his dinner and lay down for a nap. On rising he noticed that his face was swollen. The day was chilly, but he was well protected, and was not aware that he had taken cold. He had, however, also been working for a week previous to this drive in a damp cellar. The swelling extended rapidly, and in a few days he was anasarcaous. He consulted a physician, who said the dropsy was due to kidney disease, but allowed him to be up and about for a month. He then put him to bed, where he remained until admitted to my wards.

On admission there was extreme general anasarca and large abdominal effusion. His face was so swollen that his eyes were almost closed and his hands and arms were like cushions. His legs, thighs, and abdominal walls were similarly infiltrated, and the first were marked with cicatrices left from scarifications which had been made to allow the serum to drain off. His scrotum was as large as a child's head. The secretion of urine was very scanty, only fourteen ounces being secreted the first day after admission. He was first placed on Hay's treatment, with concentrated salines and restricted

fluids. Digitalis had been used before admission in such quantities that the smallest dose sickened him, and it was impossible to use it. His abdomen was tapped and a gallon of water drawn off. A hot vapor bath was given without effect, and pilocarpin hypodermically, in one-third and one quarter grain doses, with like result.

On the 16th of February he was placed on skimmed milk—four ounces every two hours, increased to six ounces in the second twenty-four hours, and subsequently to eight—in lieu of all other food and medicine, except such as was required to keep his bowels open. Under this treatment his urine increased from an average amount of twenty-five to thirty ounces, but never became large. The dropsy, however, rapidly diminished, and soon had entirely disappeared from his arms, face, and trunk, and almost entirely from the lower extremities. On the 28th of February he was permitted to have, in addition to the milk, four oysters, to his intense satisfaction. He was also allowed small doses of Basham's mixture, with strychnine. The abdominal effusion gradually re-accumulated, and he was again relieved of a gallon of fluid, on March 10th. During this time the bowels were kept freely acting with magnesium sulphate, but, as stated, the quantity of urine did not increase above thirty ounces and remained for the most part about twenty-five. With a view to increasing this secretion spartein was ordered in one-quarter grain doses, three times a day, and increased until two grains were taken without any effect. Caffein was then ordered (March 20th) in doses of three grains, three times a day, without materially increasing the quantity of urine, but with an unexpected effect on the bowels, which were moved from seven to thirteen times in a day. Notwithstanding this, he felt perfectly well, and the dropsy had almost entirely disappeared, even from his feet, although he was up many times on account of his bowels. On the 27th his temperature, which had been either normal or subnormal since his admission, suddenly rose, simultaneously with that of every other patient in the ward. He acquired a stubborn cough, his breathing became embarrassed, and he seemed very ill. Then his dropsy rapidly increased, and in a few days he was as bad as ever. He became discouraged and left the hospital. The acute illness which was responsible for this relapse was probably influenza, as all the patients in the ward were suddenly attacked by it.

These cases represent a class in which the usual measures fail to accomplish any results, and it is certain that if they had been left alone the patients would have perished. In all a turn in the tide took place after milk began to be administered at regular intervals and in fixed doses. In two the opportune addition to this treatment of spartein in full doses was followed by free increase in the secretion of urine, with continued improvement, while in one this drug failed. On the other hand, in that case caffein proved a valuable remedy, though not by its action on the kidneys so much as by its effect on the bowels. This effect of caffein, scarcely referred to by therapeutists, I

have found a frequent one, by which its efficiency as a diuretic is greatly increased. Although there is reason to believe that sugar of milk is a diuretic, it is evident, from a review of these three cases, that the substitution of all food by milk was not followed by diuresis, and yet improvement set in, and when it flagged and diuretics were used the physiological effect of this class of remedies promptly appeared in two instances, while in the third a purgative effect was equally efficient.

In looking about for an explanation of this happy effect I have been forced to conclude that it was really the result of the small amount of solid and liquid nutriment ingested. It will be remembered that the method was to permit but four ounces every two hours for the first day from 6 A. M. to 8 P. M., or thirty-two ounces in the twenty-four hours, in lieu of all other solids and liquids, and in the second twenty-four hours but sixteen ounces more. Now, even with the urine unincreased and the action of the skin, lungs, and bowels maintained, there is a large drain upon the liquids, intra- and extra-vascular, so that the latter are bound to be sucked up with the effect of gradually diminishing the œdema.

The effect is similar to that which is produced by blood-letting upon absorption. It is well known, for instance, that when a drug, as digitalis, is being administered without effect, and, for any reason, even a small quantity of blood is drawn, the physiological effect promptly asserts itself because of its prompt absorption. The limited ingestion of food in the shape of milk acts similarly, while it facilitates for the same reason the action of drugs, as shown in its effect upon the action of the spartein and caffenin in my cases. The same effect on dropsies might be expected if blood be taken from a vessel, and I can conceive of a case where such a course would be justified, but it has the disadvantage of withdrawing nutriment, while the milk keeps it up sufficiently. On the other hand, I regard the hunger as an important adjuvant, and it is the demand of the blood for food which contributes to the drawing up of the dropsical fluid. It is similar, too, to the action of Hay's treatment, which has for its principle the minimum ingestion of water along with the action of hydragogue cathartics, and there is no doubt that this treatment is often an efficient one in removing dropsies, even when invading the great serous

sacs like the pleuræ and peritoneum. It has the disadvantage, however, of presenting food in a more unmanageable shape, especially in connection with limited water ingestion, than the milk, which is given skimmed simply because it is more assimilable in this shape. Buttermilk may be substituted, being equally well assimilated, often more agreeable to the stomach, and often diuretic. Further, milk may be made even more assimilable by being peptonized.

There is, of course, no direct curative effect upon the altered organs, whether kidneys or heart, but when it is remembered how much of the inconvenience of the patient is due to dropsy, and how the circulation is interfered with by these enormous accumulations of liquid in the great serous sacs, as well as in the subcutaneous connective tissue, it is evident that the relief afforded by their removal must be extreme. It is true, also, that the movement of blood through the kidneys is further interfered with by the dropsical effusion around it, and with the removal of that effusion the engorgement is relieved, and thus a tendency toward cure results; whence may be explained, on the one hand, the long immunity from recurrence often enjoyed by such cases, and on the other, the rapid aggravation which follows exposure to cold or other cause of congestion, as instanced in the case of the young stonemason related. Such is also another very similar case of a young actor in whom there was dropsy equally aggravated, which after months of treatment had totally disappeared so that he was walking about apparently well, when the irresistible attraction of a base-ball match on a cold April day furnished the exposure which produced a recurrence of symptoms, this time irremediable.

In conclusion, I desire to emphasize the class of cases in which this treatment is indicated. It is not in acute or sub-acute nephritis, where there remains an integrity of structure and function which permits the free transudation of water into the Malpighian capsules, but where, as has been stated, there is a complete saturation of all the tissues, including the kidney itself, with transuded serum, and where there is no movement in the lymph-spaces and lymph-vessels. In such cases to administer diluents is only to increase the difficulty, because it results in a further interstitial accumulation of fluid. The

indication is to get rid of liquid, and to do this more must be taken out than is taken in, and as the kidneys have, for the time being, lost their power of removing—and it is to be remembered that this loss of power may be but temporary—ingestion may be restricted until the balance is restored. Hence we must watch and measure and limit the ingestion and watch and measure the outflow, and until the latter exceeds the former no improvement can result. It is needless to say that tapping the great cavities, and even as a *dernier ressort* the tissues, is an aid to our efforts in this respect.

TREPHINING IN TRAUMATIC INSANITY.

BY SAMUEL AYRES, M.D.,
OF PITTSBURG.

THE few reported operations undertaken for the relief of insanity attributable to cranial traumatism, as compared with the numerous ones performed on the brain for various symptoms not strictly involving mental aberration, has encouraged me to add to this limited record two cases, the notes of which I beg to submit this morning. It is true that within the last few years these operations have become more common, but prior to that time they were rare, or at least few had been published in this country. Statistics are, therefore, quite limited, and hence any contribution to the subject may not be without some interest to the general practitioner as well as to the alienist.

The first case to report is one of twenty years' duration, with a history of severe cranial injury antedating its development, in which I undertook exploratory trephining.

The notes are as follows :

Wm. McK., æt. fifty-five ; American ; married ; temperate ; without specific history or predisposition to the psychoses ; a roller in an iron mill, has been nearly a constant inmate of the Dixmont Asylum and insane department of the Pittsburg City Farm for the last twenty years.

His form of insanity is chronic mania, the course of which has been interrupted by several periods of apparently entire sanity, varying from a few months to a year in duration.

The maniacal attacks, which would often recur without apparent cause, but invariably follow quickly upon a discharge and return to his home, have been characterized by a violence and intensity not often exceeded in the most acute cases. During their early stage his face would become flushed, the eyes wild and glaring, the expression fierce and angry and the attitude threatening, which symptoms were accompanied by noisy incoherence, insomnia and great motor activity.

Twenty years ago, prior to which time his health had been excellent, while working in an iron mill, he was struck violently on the forehead by a crane

or heavy beam, and felled to the ground. He was rendered unconscious, and so remained for two or three hours.

The wound, a severe one, was dressed, the scalp being stitched, and for four days he progressed satisfactorily. At the expiration of that time, he suffered intense pain in the region of the wound, and the soft tissues of the head became greatly swollen; but this œdema and cephalalgia disappeared coincidentally with a copious discharge from the wound. It is not known what was the nature of the injury of the skull, though his wife states that the subject of trephining was considered by his physician, who is now deceased, but the operation was not performed. Nothing further interrupted recovery, and in two or three weeks he was able to resume his work in the mill.

He continued at daily labor for eight months, complaining of dull headache, roaring sounds in the head, and insomnia. Then one night he startled his wife by excitedly declaring that persons were trying to enter the house to kill them; which was entirely a delusion. He continued to rave and the next day causelessly assaulted a neighbor, and threatened the latter's life. In a short time his commitment to the Dixmont Asylum followed, where he became extremely violent and disorderly.

After one of the above rational periods, which had continued for about a year, I released him on parole from the Pittsburg City Insane Asylum on the 18th of July, 1888, and he was taken home.

For two days he seemed perfectly well, then became restless, irritable, sleepless, and slightly incoherent. In four or five days he was fully launched on another maniacal attack, and was returned to the asylum after ten days' absence.

The history of the case, as well as the noticeable scar, had led me to suspect the existence of an irritative lesion beneath the site of the old injury, and to consider whether an exploratory operation would not be justifiable.

The centre of the cicatrix was seven centimetres above the glabella and nearly two centimetres to the right of the median line, one arm of the scar four centimetres long, passing downward and terminating in the median line, the other, four centimetres long, running at right angles toward the right temporal region. The central point was, therefore, over the first frontal convolution. No external depression of bone could be felt, and the patient had not complained of pain in the part. Indeed all sensory, motor, vasomotor, and vertiginous disturbances were absent, and there was apparently nothing abnormal save the mental disorder. His eyes were carefully examined by Dr. G. W. Allyn, who found them normal. No optic neuritis nor limitation of visual field. Urine normal, S. G. 1023. Notwithstanding this negative evidence, I determined to undertake exploratory trephining, and on the 9th of August, 1888, assisted by Drs. Gladden, Allyn, Crawford, Hereman, and Ryall, I performed the operation with strictest antiseptic precautions. It is scarcely necessary to give the details of this antiseptic procedure, except to state that the points suggested by Horsley in his recent paper on "Brain Surgery" were carefully observed. The carbolic spray 1:20 was used.

A semilunar flap was reflected, including most of the scar, the base being

over the brow. No adhesions were observed between the scalp and pericranium, nor between the latter and the skull, nor was there any fissured fracture or external disease of the bone; but there was the slightest indication of a dent or depression, corresponding with the centre of the external cicatrix. At this point was introduced the centrepin of a trephine (much smaller than desired) nearly two centimetres in diameter, the rim reaching to within one centimetre of the median line.

The button of bone removed was nearly one centimetre in thickness, but there were no unusual adhesions between it and the dura. The latter membrane appeared normal in all respects and bulged but slightly into the opening. The remarkable thickness of bone did not seem to be due to inflammatory deposit, as the diploë was normal, and the inner table exhibited a shiny, vitreous appearance without depression. There being apparent so far no lesion, it was not deemed prudent to enlarge the bony opening nor to incise the dura, as the patient, long under the ether, was standing it badly. It may here be mentioned that the preliminary hypodermic of one-quarter of a grain of morphia was given, and ether soon after administered. But the patient was so slow coming under its influence that a little chloroform was required to procure complete anæsthesia.

After the slight capillary oozing had ceased, the wound was washed with a 1:5000 solution of corrosive sublimate, the four corners of the divided pericranium approximated by carbolized catgut, and the scalp stitched with carbolized silk. A drainage-tube was inserted, and the surface dressed with sublimate gauze. The tube was removed in forty-four hours.

The button of bone was not replaced, the space being unoccupied. The flap united by first intention, except where the drainage-tube emerged. There was for a few days a chocolate-colored discharge, becoming amber-colored and thickish. This soon ceased to collect, and at the end of a week the patient was going about the ward. The temperature did not rise above 101° or 101.5°, nor the pulse above 90.

The mental state, which, as above remarked, was greatly disturbed before the operation, gradually improved. There was each day, up to about the tenth, less incoherence and mental confusion, but after that date he relapsed into very nearly the same excited condition that had previously existed.

The temporary improvement was probably due to the generally derivative effect of the operation. The patient has apparently received no permanent benefit.

The second case is one of insanity, of three years' duration, following promptly upon a heavy blow on the head.

William W., æt. twenty-five; single; a puddler; nativity, Wales; without specific history.

On the 6th of April, 1886, while at work he was violently assaulted and received a terrible blow across the back of the head with a heavy cross-bar.

He became at once unconscious and remained so for about five weeks. The physician who examined him at the time discovered an extensive lacerated wound of the scalp posteriorly and a widely separated fissured fracture

passing across the occipital region from left to right, but no evidence of bony depression.

No surgical measures, except a simple dressing were provided, as it was confidently expected the patient would die. In the meantime he was removed to a hospital. The coma persisted, discharges were involuntary, deglutition automatic and very difficult. In about five weeks consciousness and voluntary power were quite rapidly regained, and he was soon able to walk about. It was then, however, observed that his mind was disordered, and on the 14th of June following he was committed to the Pittsburg City Asylum. His form of insanity was that of a rather mild mania with many delusions.

There was slight left hemi-paresis and hemi-anæsthesia. With the right hand the dynamometer registered 55, with the left 35. The pupils were equal and responsive to light, the reflexes normal.

In regard to the special senses with the left ear, the watch tick was heard at seven inches; with the right fifteen inches.

Taste was seemingly unaffected, but smell was much impaired. He could not perceive the odor of an onion, nor distinguish between it and that of cologne water. Unfortunately an ophthalmoscopic examination of the eyes was not made, but vision seemed normal. The tongue was extruded without deviation. No pain had been complained of at site of wound.

The patient continued in a very amiable mood for several months, and then had two epileptic convulsions one night. These apparently produced no special effects.

After about one year from date of admission, his disposition greatly changed. He became taciturn, sullen, suspicious, morose, and profane, but not disorderly. In this condition he remained until the date of operation. At the time of admission I had desired to do exploratory trephining, but his relatives strenuously opposed it, and did not finally consent until the 15th day of April, 1889, when the operation was done.

The external scar, which was considerably depressed below the contiguous tissue, extended from one inch to the left of the median line to four inches to the right, crossing the longitudinal sinus just eleven inches posterior to the root of nose, and three inches above the occipital protuberance. Its direction was nearly horizontal, the patient being erect.

I will not trouble you with particulars of the operation, except to add that the same antiseptic precautions were taken as in the former case.

An extensive flap of scalp and pericranium was dissected up from the occipital region, and the bony lesion well exposed. This was found to be an extensive fracture, but without obvious depressions. A trephine one and a half inches in diameter was implanted over the fracture two inches to right of median line, and a button of bone removed. The dura did not bulge and was not adherent to the bone. Then following to the left of the line of fracture a piece of bone two and a half inches long was removed by a Hey's saw, the opening extending one inch to the left of the longitudinal sinus. An incision one and a half inches long was made into the dura and the pia exposed. Directly under the opening was found an old hemorrhagic

cyst, the contents of which were evacuated—about one drachm of yellowish fluid pouring out.

There being no further indication of disease, nor adhesions between the dura and the pia, the opening in the former was closed by fine interrupted catgut sutures, and the flap replaced and stitched; no part of the bone was returned. The inner table had been considerably splintered by the blow, along the line of fracture, and several small fragments were originally separated from the inner surface, but these had not penetrated the dura but had become partly reunited to the bone.

The patient made a speedy recovery, being out of bed in one week. The temperature at no time except the first day was above normal.

For a few days following the operation, he was cheerful, quite rational and talkative, but soon settled down into his former mental condition, in which he has since remained.

REMARKS.—This report, Mr. President, is submitted rather for the negative results that it may add to the limited records of late trephining for traumatic insanity. I have not hesitated to give it because the cases were unsuccessful. The results were certainly not unexpected, for more unfavorable cases for operation could scarcely be found, yet after careful deliberation it seemed justifiable to give the patient the benefit of the remotest chance. Certainly the slight risks attending these operations under careful antiseptic precautions should deter no one from undertaking them, for Dr. Amidon¹ estimates from the study of one hundred unselected cases that the mortality from the operations *per se* is only about three per cent., and it seems possible that it may be reduced below this.

Dr. John B. Roberts² has admirably formulated many indications and contra-indications for operative interference in various affections following cranial injuries, but not many are pointed out by him or by others, that I can find, to guide one as to the propriety of late trephining when the symptoms are exclusively mental and the nature and extent of the lesion not ascertainable by superficial examination, nor to be inferred by the aid of localization. For it is well known that ideational is not abreast with motory and sensory localization.

Touching this phase of the subject, the former of these cases may be of some value, though any deduction based upon it should be received with caution, for the reason, that if a palpable lesion

¹ Reprint from The Medical News of June 21, 1884, p. 11.

² Operative Surgery of the Human Brain, p. 53.

were present, it had not been reached, because the perforation of bone was small and the dura not opened.

But to illustrate the point, let us suppose a case of insanity of months or years in duration, without other assignable cause or predisposition, and not amenable to treatment—having a history of severe injury to the head, preceding by months or years the mental symptoms, but without obvious cranial depression—is the physician justified in trephining, even for exploration? I believe that he is. It would at least be a simple matter to reflect the scalp over the suspected point, and examine the pericranium and skull.

If no adhesions were found between these structures, nor indication of fracture, depression or disease of bone, the operator might well hesitate to penetrate the calvarium were it not that serious and fatal sub cranial disease has followed external blows, when the scalp injury was but trifling.¹ Hence it would seem that in all such cases, particularly if the “traumatic neurosis,”² as aptly termed by Spitzka, be present, and unless there be special contraindications, exploratory trephining should be done at the site of injury, and at as early date as possible after the accident or the accession of mental symptoms.

Interesting cases have been reported of trephining for traumatic insanity, though, as stated, the number is not large. Of the one hundred and fifteen cases of trephining for various symptoms following head injuries collected by Dr. Amidon,³ only nine showed mental aberration, which supervened from eight days to nine years after the receipt of injury. Of the nine, five recovered, three improved and one apparently recovered, but soon after committed suicide. In all of these, there was decided depression or fracture of bone.

A few years ago Dr. William A. Byrd⁴ reported four cases of insanity after fractured skull that were trephined—one by himself and three by Dr. Briggs. Two recovered mentally, one was improved, and one died.

Dr. W. B. Fletcher⁵ has published eight cases of traumatic insanity trephined by himself. Two, it is inferred, recovered, three

¹ Operative Surgery of the Human Brain, p. 36, John B. Roberts.

² Manual of Insanity, p. 370, Spitzka.

³ Annals of Surgery, vol. i, 1885, p. 207.

⁴ Transactions of the American Surgical Association, vol. ii., 1884, p. 130.

⁵ Reprint from American Journal of Insanity, October, 1887.

were improved, two were unimproved, and in one it is not stated whether the decided amelioration of symptoms following the operation was permanent or temporary.

Dr. Fletcher's cases are interesting in connection with the proposition stated, for in three of them no depression or fracture was found after reflecting the scalp. Two of these he trephined, the other he did not, and in all excepting one, he remarks, "very strong adhesions of the dura were found"—presumably between the dura and the skull, as he incised the membrane in but one case.

It is not intended here to give a *résumé* of cases of mental disorder from traumatism or supposed traumatism that have been trephined, but to encourage renewed interest in a matter that more particularly concerns every physician having anything to do with the insane.

It is greatly to be regretted that in the report of cases some authors fail to mention most important details. The nature of the accident or vulnerating force, the immediate effects of this, the time elapsing until the appearance of mental symptoms, the character of symptoms and form of insanity, whether intermissions or remissions in these, *the precise location and extent* of the scalp cicatrix and cranial lesion, if one be present, the presence or absence of motory, sensory, or special sense disturbances, the examination of the eyes and urine, the size of trephine and where placed, the anæsthetic used, the presence or absence of adhesions, the antiseptic measures, the incision or not of the dura, and all the pathological findings or their absence, are but a few of the many points that should be *distinctly* stated by the operator.

REPORT OF AN INQUIRY CONCERNING LIVING CREATURES FEEDING ON HUMAN REMAINS IN THE GRAVE.

BY TRAILL GREEN, M.D.,
OF EASTON.

IN my address on hygiene, which I read before the Society at its last meeting, I referred to the belief that worms feed upon human bodies in graves, I stated that I would make inquiry concerning observations made in Ivry Cemetery, Paris.¹ I learned from a Paris correspondent of one of our medical journals that the interments in the Paris cemetery were in vaults. This is a very important fact in the history of the subject.

I have since received a copy of *Entomologie appliquee a la médecine Légale*, par le Dr. George P. Yovanovitch, Paris, 1888. This is a very interesting work. Referring to the presence of insects in coffins, he says, "As it regards interred bodies, we find on them diptera, which deposit their eggs in the natural openings—the mouth and the nostrils, before they are wrapped in shrouds, and from them the larvæ are afterward developed in the grave. We know, indeed, how many flies are found in the chambers of the sick, and in the wards of hospitals in warm weather" (p. 17). No one will doubt the entrance of insects to coffins in this way. Again, he says, "The second invasion is characterized above all by phoras and rhizophagi, found lively on dead bodies interred after two years, as M. Méguin has shown at the cemetery of Ivry," and he adds, "It must be admitted that these larvæ come from eggs laid on the surface of the ground by these insects, drawn thither by particular emanations perceptible to their senses, and the offspring have traversed the whole bed of earth which separated them from the cadaver guided by its odor, and they have arrived at its surface

¹ The report as to the Ivry Cemetery, Paris, is correct. The present paper is designed to show the conditions of burial there as reported by French writers.

as other larvæ of flies reach it, as is known in the case of truffles, undergoing decomposition in the earth" (p. 17).

The analogy does not hold, as truffles (species of fungi) are found in the soil about a foot from the surface, a depth far short of that at which the dead are usually interred. After describing the changes which are produced by insects in dead bodies exposed to the open air, the writer says: "We have the same changes in bodies interred, but with the condition that the earth be porous, or that a current of atmospheric air is present, conditions which we cannot have in a clay soil, or in coffins of lead or rubber" (p. 26).

Under such conditions we see how insects may be found in graves so open that air passes through them, that they are not deep, or that interments are in vaults. It is very evident that observations were made on cadavers resting in vaults. For example, fifteen days after interment examination found a small number of larvæ. Fifteen days later nymphs were found—insects in the second stage of metamorphosis—a short time afterward adults were seen. This applies to insects of the order of diptera. It is not probable that ordinary graves were opened so frequently.

We can say, we think, that in this country we are correct in our statement that worms are not found in graves. We are more careful of the bodies of deceased friends: they are covered in ice-boxes, or otherwise covered, and so are protected from the possibility of being fly-blown—coffins are not such as to allow currents of air to pass through them.

The subject, as studied in France, has very great interest in a medico-legal point of view. Orfila reported some observations on the subject as early as 1831.¹ Brouardel, in the winter of 1887, examined cadavers in the cemetery Ivry with reference to entomology, and Méguin² has the honor of applying the presence of insects on cadavers in determining the time of death, and the period that has since elapsed. The subject is of great interest in a medico-legal investigation in the case of murder, and exposure of a body in the open air, as well as in the earth. The whole subject is of great scientific interest, although it is not of as large application in this country as it is in France, for we have not hitherto found insects of any kind in graves.

¹ Orfila, *Traité des Exhumations Juridiques*. Paris, 1831.

² *La Faune des Tombeaux*, par Méguin : *Comptes-rendus d'Académie des Sciences*, 1887.

The author of the work referred to says the agents of putrefaction are bacteria, of which successive generations appear. They are followed by insects.

A cadaver examined during the first year after interment—and there are no larvæ or nymph in the coffin—the person died in the winter. He describes the appearance of the body, which need not be given here. In the second year four species of diptera are found. In the third year acaridæ or mites are found, and the cadaver is reduced to a powder. In the fourth and fifth years insect life has ceased and their remains are found in the coffin.

ARSENITE OF COPPER—THE RESULTS OF COLLECTIVE INVESTIGATION.

BY JOHN AULDE, M.D.,

OF PHILADELPHIA.

MR. PRESIDENT AND MEMBERS OF THE STATE MEDICAL SOCIETY: Believing that the annual meetings of the medical practitioners should be conducted with a view to further the progress of the science of medicine, and that the best interests of the members will be subserved by the presentation of facts which represent accumulated experience, I have determined to offer, in the form of a synoptical report, the combined experience of a number of physicians who have been using the arsenite of copper for the relief of various affections of the bowels. The present seems to be an acceptable time for this report, as the season of the year is now upon us which will demand our best energies for the preservation of the lives of thousands of innocent children.

For the purpose of bringing the matter fairly before you, I may mention that for the past two years I have been using this remedy for various affections which, under the ordinary methods of treatment, had been more or less rebellious, and the results of my observations have been so successful that I felt warranted in calling the attention of the profession to the subject. Several articles have been published by myself as well as by others who had obtained their supplies from me, and from time to time these gentlemen have reported the results. A somewhat elaborate paper appeared in the *Therapeutic Gazette* for July, 1889, which brought me several hundred inquiries, and in the issue of *The Medical News* of November 9, 1889, I published a synopsis of reports, representing the experience of over twenty-five different observers. Dr. L. G. Broughton, of Reidsville, N. C., and Dr. Thomas H. Stewart, of

Synoptical Report covering the Employment of ARSENITE OF COPPER. Compiled by JOHN AULDE, M.D., of Philadelphia.

Presented to the Pennsylvania State Medical Society, June, 1890.

N ^o .	Contributors.	Cholera Morbus.		Colicky Pains, etc.		Cholera Infantum.		Diarrhœa and Dysentery.		Diarrhœa of Phthisis.		Typhoid Fever.		Anæmia, Chlorosis, etc.		Total.	Disorders yielding most readily to Treatment.	Other medication was used in—	My conclusions are as follows:	Clinical Observations in Typhoid Fever show—
		No.	Results.	No.	Results.	No.	Results.	No.	Results.	No.	Results.	No.	Results.	No.	Results.					
1	DR. E. E. ASH, Goshen, Indiana.	6	Flattering.	15	Very satisfactory.	4	Good.	10	Beyond expectation.							35	Diarrhœa and dysentery. Derangements of digestion.	Two cases of cholera morbus, and 2 cases cholera infantum.	Valuable in mild or severe cases, especially at the onset.	No cases.
2	DR. C. W. BEAUMONT, Clarksville, Tenn.	13	Relief in one to four hours.			2	Steady improvement; well in 2 and 3 days.	8	All rapidly recovered.			1	Diarrh. controlled after many other remedies failed.			24	Cholera morbus and simple diarrhœa.	All except diarrhœa.	Valuable in diarrhœa, severe or mild.	Typhoid with diarrhœa exceptional in this section.
3	DR. A. D. BOGGS, Marquez, Texas.	5	Good.			4	Good.	15	Early, good; later, no effect.							24	Cholera morbus, cholera infantum, and diarrhœa.	Possibly one-third.	Valuable in severe and mild cases if seen early.	No cases.
4	DR. R. E. BUCHANAN, Parker, S. Dakota.			1	Good.	3	Good.					1				5	Cholera infantum.	All cases.	Especially valuable in the beginning.	Controlled pain and diarrhœa, and checked vomiting.
5	DR. J. COOPERIDER, Madison, Indiana.	6	Excellent in every case.			2	Good.									8	Cholera morbus with offensive stools.	None.	Antiseptic of more than ordinary power.	No cases.
6	DR. W. E. DODDS, Chicago, Illinois.			4	Good.			4	Good.							8	Colicky pains and diarrhœa caused by improper diet.	One case only, to relieve pain.	Useful in all cases.	No cases.
7	DR. M. F. DUMAS, Bald Knob, Arkansas.	3	Quick cure.	1	Good.	5	Never had a better remedy.	2	Curative.			1	Severe case, with intestinal hæmorrhage(cured)			12	Those named in report.	Nothing answered as well as arsenite.	Good in severe cases, and given early prevents their development.	Appeared to reduce the morning temperature.
8	DR. JOHN F. ESCHER, San Diego, California.	7	Complete cure after from 1 to 3 stools.	2	Immediate relief.	21	Relieved in from 1 to 3 hours—except one case.	32	29 cures and 3 partial failures.	3	1 permanently and 2 temporarily relieved.			2	Too early to note benefit.	67	First three on the list, the morbid action being checked in nearly all from the first dose.	Seven cases only—in 3, for removal of objectionable material in alimentary canal.	Most valuable in the earlier stages. Almost a specific, and the most valuable remedy yet introduced.	No cases.
9	DR. E. L. HERRIOTT, Jacksonville, Illinois.	2	Good.	6	Good.	1	Good.	7	6 good, and 1 not favorable.							16	First four on the list.	One case cholera morbus, 2 cases diarrhœa and dysentery.	A valuable remedy in the cases reported. May be supplemented by the use of mercury.	No cases.
10	DR. E. M. HOLLAND, Colfax, Iowa.	1	Cure.	3	Relief in all.			6	5 cured.							10			That it answers the purpose well.	No cases.
11	DR. TRACY IVY,* Peoria, Texas.					3	Good in two cases; apparently inert in one.	12	Good in 10 cases; apparently inert in 2 cases. (3 "bowel complication," with measles.)	2	No apparent benefit.					25	Diarrhœa and dysentery with green and foetid stools—such as demand antiseptics.	Fully 50 per cent., but where antiseptics were indicated, arsenite alone did the work.	Indicated at the beginning of an attack, frequently repeated.	No cases.
12	DR. A. N. JOHNSON, Minden City, Michigan.	10	Cure.			25	Cure.	25	Cure.			4	Cure.			64	Cholera morbus and cholera infantum.	None of these cases. The usual prescriptions were given, with instructions to use when arsenite failed—but it did not fail.	More useful in acute than chronic cases.	Controls vomiting, checks diarrhœa, and exerts a strong sedative influence.
13	DR. M. MAGELSON, Fergus Falls, Minn.			17	Generally satisfactory.	43	Good.					1	No result.			61	Cholera infantum.	The cases of colicky pains—sedatives only. The diet was regulated in cholera infantum, but no medicine	In small, often repeated doses, . . . a good and reliable remedy.	Exchanged for resorcin,
14	DR. GEORGE MARTIN, Litchfield, Michigan.							3	Favorable.							3		Two cases.	Useful in moderate cases at any stage.	No cases.
15	DR. A. S. MAXON, Milton Junction, Wis.	3	1 uncertain, 1 not good, 1 recover'd in half an hour.											2	Results uncertain as yet.	5	Persistent vomiting and cholera morbus.	Iron only in anæmia.	Valuable in vomiting and cholera morbus.	No cases.
16	DR. F. M. MORGAN, Berkley, Virginia.	2	Recovery.	5	Recovery.	3	Recovery.	2	Recovery.			3	Recovery.			15	Diarrhœa and dysentery, and cramps in the bowels.	Four cases.	Valuable in both severe and mild cases at commencement.	Bowels controlled in 2 cases. Do not believe it affects the temperature to any extent.
17	DR. W. F. REED, Kalida, Ohio.			5				10								15	Painful affections of stomach and bowels, with or without diarrhœa.	Half the cases without effect, before using arsenite of copper.	Cannot give a decisive answer.	No cases.
18	DR. J. N. ROE, Brooklyn, N. Y.			3	One improved very much. They were of long standing.				No record of cases, but use it in almost all cases.			1	Very good.			4		In about three-fourths of the cases.	Most favorable in the beginning of diarrhœa.	Used with other medicine, and cannot say what effect it had.
19	DR. B. F. SHERMAN, Ogdensburg, N. Y.	23	Immediate and favorable.	15	Favorable.	2	Negative.	10	Slow, but satisfactory.							50	Cholera morbus and colicky pains.	Five cases.	A sure and invaluable remedy in cholera morbus, and safe in all cases of diarrhœa & dysentery.	No cases with diarrhœa.
20	DR. E. J. STEPHENS, Utica, N. Y.	10	Prompt relief.			18	Good.					2	Good.			30	Diarrhœa and the pain of cholera morbus and cholera infantum.	None, except typhoid fever.	A very valuable drug.	Checks the bowels, but does not reduce temperature.
21	DR. THOS. H. STEWART, Dixie, Georgia.	8	Good—magical.			2	Successful in 1 case; relief from pains & diarrhœa in other.	20	Good.			5	Good.			35	Cholera morbus and diarrhœa; less prompt in dysentery and typhoid fever.	Calomel in dysentery if seen early; antiseptics & turpentine in typhoid.	Restores nerve-power in some occult manner.	Controls bowels, lowers pulse and temperature.
22	DR. W. E. STEWART, Clanton, Alabama.	3	Cure in 2 cases.	2	Good.	1	Good.									6	Cholera morbus.	All my cases treated after other medication had been used.	Limited experience does not warrant conclusions.	No cases.
23	DR. E. STUVER, Rawlins, Wyoming.	1				1		4 or 5								6	Diarrhœa.	About three-fourths of cases.	Valuable in all grades of severity.	No cases.
24	DR. D. M. VAWTER, Carthage, Texas.	6	Relieved and cured.			4	Cured.	10	Relieved and cured.	1	Benefited.					21	Cholera morbus, and diarrhœa and dysentery.	About one-fourth of the cases.	Valuable at any stage.	No cases.
25	DR. D. W. WAUGH, Brooklyn, N. Y.	4	Fair.	1	Perfect relief after a few doses.	2	Speedy recovery.	6	2 made speedy recovery. (2 of chronic diarrhœa, after months of previous treatment.)			4	Favorable.			17	Cholera morbus and cholera infantum, and chronic diarrhœa.	About one-fourth of the cases.	Valuable in mild cases—at the beginning of an attack.	Checks diarrhœa, improves condition of digestive tract. Temperature not affected.
26	DR. L. WORSHAM, Evansville, Indiana.	3	Recovery in 24 hours.	2	Relieved after a few doses.	5	One case after 4 days; the others yielded almost immediately.	4	Cured in less than 24 hours.							14	Bowel complaints in teething children.	None. Depend entirely upon the arsenite in diseases named.	Reliable in severe and mild cases; should be given at once and continuously.	No cases.
Totals		116		82		151		198		6		23		4		580				

* Dr. Ivy suggests that copper arsenite thus administered may be destructive to spores, but larger doses at longer intervals are less effective.

Dixie, Georgia, also published short papers, and possibly others which have been overlooked. These reports have been so uniformly favorable that there has been an unusual demand for the preparation, and through the medium of journal extracts, its employment has rapidly extended. The reception which this drug has met with abroad has been equally flattering, one of my papers having been translated by Prof. Dr. Hugo Schultz, of Greifswald, Germany, and published with favorable comments in the issue of the *Deutsche Medicinische Wochenschrift* for May 1, 1890.

It will be sufficient for the present to define in the briefest possible manner the indications for the employment of the remedy, and give some directions for its administration; a study of the accompanying report will be the best proof that can be offered as to its valuable properties.

The indications for the exhibition of arsenite of copper practically cover all disorders of the stomach and bowels in the early stages, before the inflammatory action has extended to the adjacent or contiguous structures, and it may be given with perfect safety to adults and children. In the following table I have included, for the purpose of obtaining the most direct and positive testimony, the following diseases: Cholera morbus, colicky pains, etc., cholera infantum, dysentery and diarrhœa, diarrhœa of phthisis, typhoid fever, and, last, anæmia, chlorosis, etc.

The method of administration consists in dissolving one tablet, containing $\frac{1}{100}$ grain, in from four to six ounces of water, and of this solution the patient takes a teaspoonful every ten minutes for the first hour, then a like amount each succeeding hour, or more frequently if deemed necessary. Children, of course, do not require more than half that quantity, and infants at the breast will be able to take but a few drops, but the frequency of the repetition is of the utmost importance. For those cases in which water is contra-indicated, I have had prepared tablets each containing $\frac{1}{5000}$ grain, and in this way the dose can be regulated for all cases. It should be mentioned that Dr. Broughton first recommended this drug for the relief of anæmia, chlorosis, etc., in which cases he advises doses of $\frac{1}{25}$ grain three times daily.

The following summary, when put in the form of figures, shows:

Number of contributors, 26.¹

Cholera morbus, number of cases	. . . . .	116
Colicky pains, etc.,	“ “	82
Cholera infantum,	“ “	151
Diarrhoea and dysentery, number of cases	. . . . .	198
Diarrhoea of phthisis,	“ “	6
Typhoid fever,	“ “	23
Anæmia, chlorosis, etc.,	“ “	4
Total number of cases reported	. . . . .	580

In order to obtain an opinion from the different contributors, the following queries were appended to the blank form issued, and the replies have in some instances been condensed, although the substance has been carefully preserved, as far as possible, in the exact words of the reporters :

- 1. The disorders yielding most readily to treatment were,
- 2. Other medication was used in (Please state the number or proportion of cases)
- 3. My conclusions are as follows: (Please state if you consider it valuable in severe, mild, or moderate cases, and whether indicated in the beginning or at a late period of an attack)
- 4. Clinical observations in typhoid fever show (Please state if the bowels were controlled, vomiting checked, and if it has any effect upon temperature)

In conclusion, I desire to thank the gentlemen who have so kindly given the matter their attention, and who have taken the time to present me with these statistics, which I trust may form the nucleus of a method of treatment which shall be more successful than that which has heretofore prevailed. I am under obligations to Messrs. Parke, Davis & Co., who have generously supplied all applicants with samples at my request, and who have placed the tablets (without compression) on the market, so that those who may wish to investigate the matter will hereafter have no difficulty in obtaining supplies.

¹ Since the above was put in type eight additional reports have been received, covering 114 cases, making in all 694 cases, by 34 observers.

RATIONAL MIDWIFERY.

By JOHN MILTON DUFF, A.M., M.D., PH.D.,

PROFESSOR OF OBSTETRICS IN THE WEST PENNSYLVANIA MEDICAL COLLEGE, SURGEON
AND GYNECOLOGIST TO THE PITTSBURG S. S. HOSPITAL.

OBSTETRICS, or midwifery,—I use the terms synonymously,—is usually defined as the science and art of delivering woman in childbirth—a definition misleading because it is too narrow in its scope. The science of obstetrics embraces all the knowledge we possess relative to the reproduction of our species, especially so far as the part therein played by the female is concerned. The art of obstetrics is the application of this knowledge in practice.

Instead of being a mere mechanic who delivers a woman at term, the rational obstetrician cares for her from the moment of conception until involution is complete. He must not alone be acquainted with the anatomical structure of the mother and the mechanism of labor, but as well with all of the physiological changes which take place during and immediately subsequent to pregnancy. He must be familiar with and ready to detect every pathological condition which may arise during the same period, know their clinical history and sequelæ, have at his command the medicinal or mechanical measures for combatting them.

We see, therefore, that a rational—in other words, a wise, judicious—midwifery presents for our study a vast, interesting, instructive, and complicated field, and in practice calls for erudition, a sound and comprehensive judgment, patience, tact, and skill. It is one of the principal factors comprising the great field of medicine, and cannot be studied or practised successfully independent of any or all the other branches. Indeed, the rational obstetrician must of necessity be a physician in the broadest sense of the term. His capabilities must be beyond and above that of diagnosing pregnancy and the delivery of the woman. He must be familiar with and

equal to the task of meeting all of the varying conditions which may take place prior to, during, and after delivery.

In view of these facts, I do not hesitate to say that rational midwifery deprecates the special education of professional midwives.

In speaking thus I do not wish to be understood as speaking disparagingly of specialists in obstetrics or any of the other special branches of medical practice. I glory in our specialists, and in the grand and noble work they are doing for humanity in the elevation and advancement of medicine. No man or woman, however brilliant in mind or transcendent in genius, should be permitted to go forth from the college halls to immediately enter upon the special practice of obstetrics or any other specialty. To become a successful specialist, the polishing, rounding off, the stability and judgment acquired by several years of training in the severe school of general practice is essential. No reputable medical school would think of granting a special diploma of competency in ophthalmology, gynecology, pediatrics, or any other special branch of practice, without the applicant would first exhibit at least a working knowledge of general medicine and surgery.

Nevertheless, we are brought face to face with the fact that special diplomas in obstetrics are recognized by our laws. Their possessors are sent forth upon a confiding public with this certificate of proficiency to certify that they are competent to meet the exigencies of every case which may come under their care. In the name of humanity, I ask, Is this rational? Is it just?

If rational midwifery condemns this class, what is to be said of the tens of thousands of self-constituted midwives without even the rudiments of an education who are, throughout the length and breadth of this fair land, daily blindly taking upon themselves the sacred and grave responsibilities connected with the practice of obstetrics? Are the lives of our mothers and of their unborn babes of so little moment that they are thus to be trusted in the hands of ignorance and superstition? Is such a condition of affairs not a stain upon our benevolence and a disgrace to the intelligence of our age?

Is it not our duty as professional men to speak out against this evil in tones which can be heard and in language which cannot be misunderstood?

Let the cry of envy, of jealousy, go up. Heed it not. It is the duty of every medical man to make his influence felt in crying

down this imposition. Yes, may I say it? No member of our profession, no philanthropist, should rest easy until the red-handed empiricism and quackery which in every branch of medical practice stalks through our land, ravishing homes, destroying life, and impoverishing the needy suffering, is trampled under foot and consigned to the shades of ignominy.

I do not wish to occupy the time of this Association by discussing this topic at length. I do think, however, that the profession should endeavor to educate the people to a higher appreciation of the knowledge and skill requisite to make a *rational*, and thereby a *safe*, obstetrician.

I have said that rational midwifery cares for the woman prior to, during, and after her confinement. Now, in a great many districts the people do not think of, and the physicians do not urge, the necessity of calling the attendant prior to labor setting in. The rational obstetrician should insist upon this, and the public should understand that in every instance a careful, competent, and discerning physician should make one or more examinations of every pregnant woman before the time for her lying-in. I admit, no particular benefit may be derived from it in the majority of cases, except that in every instance directions may be given with reference to preparation of the room, clothing, and person, so as to give the most comfort and best sanitary conditions.

If these calls be neglected because they are not necessary in every case, who knows but the very case which is not seen may be a subject of albuminuria, have an oblique presentation which is remediable, a deformed pelvis which might demand premature delivery, or have some one of the many conditions which, if not properly managed, might interfere with safe delivery and subsequent recovery?

One would think that with the experience of ages and the teachings and writings of the brightest minds in the profession to enlighten us, there could be no difference among the profession regarding what constitutes "rational midwifery." There is, however, a difference of opinion.

This difference of opinion, we are constrained to believe, is not harmless. When we consider the results of practice, of those practising different methods, we are forced either to the belief that some men are peculiarly unfortunate in the character of the cases they are called upon to treat, or others are dishonest in their re-

ports; or, on the other hand, that some are irrational in practice. To show this depravity we have the following statistics. For prudential reasons I do not mention names. One physician in a neighboring county reports having performed craniotomy 17 times in 850 deliveries, against 4 craniotomies in the practice of another in over 2200 deliveries. Thirty-three still-births at term in 600 deliveries is given by another against 15 in over 1100 deliveries by another. Forty-two deaths of the mother is the painful story told by one in 960 deliveries, against seven deaths by another in over 1800 deliveries. Eight adherent and twenty-two retained placentas in 94 cases is met with, one adherent and not more than ten retained in a practice of 2600 cases. Four per cent. of forceps deliveries is pitted against forty-eight per cent. in the practice of two young gentlemen of five years' experience each.

Certainly statistics, such as these, suggest a want of rational practice somewhere. I will admit they are extreme cases and do not reflect the general practice of the profession. Nevertheless they show us that a high standard of requirements for graduation should accompany a conscientious instruction in the subject before us.

While cases of midwifery are not a unit in their character and great latitude must necessarily be allowed the rational practitioner, there are certain general rules which should be observed by all. Rational midwifery approves the saying of the revered Meigs, "Study every case, of itself, for itself, and by itself," this does not militate against the principle that the practitioner must be regardless of his time, be patient, painstaking and sympathetic. He must never forget that his duty is to aid nature, not to force her. The general use of the forceps and the general administration of ergot to aid in delivery is reprehensible. Rational midwifery is not satisfied with the dictum that a diagnosis of position and presentation and the progress of labor be made alone by external manipulation, but hints to us that we will conduct the case with greater safety as well as more knowingly, if after using proper antiseptic precautions we examine the patient per vagina and ascertain the condition of the soft parts, the dimensions of the pelvis and the degree of dilatation. It calls upon us in the use of antiseptics to remember that the antiseptic without cleanliness in all its details being observed is void. He who eliminates antisepsis at this day is unworthy the name of obstetrician, but as Dr. Pancoast said yesterday in remarks at West Pennsylvania Hospital, antisep-

sis is not all of surgery. I beg the young man to remember it is not all of midwifery. It tells us that in the use of anæsthetics we should distinguish between surgical and obstetrical anæsthesia, and that only in exceptional cases, such as in the treatment of a neglected shoulder presentation, should profound anæsthesia be resorted to. Anæsthetics during the third or placental stage of labor should not be used. The washing out of the uterus in every case of labor is superfluous, if not positively dangerous. Tamponing after the fifth month is dangerous. Applying the forceps in an occipito-posterior position while it is high up and before nature has shown herself unable positively to advance and rotate it to the front is irrational. Rotating the chin to the rear in a face presentation or to the front in a breech presentation is a violation of all obstetrical teaching. An attempt to deliver a dead child, face presentation, chin to the rear, when rotation to the front cannot be secured, without performing craniotomy, is absurd. These are a few points I believe rational obstetrics teaches us and I have mentioned them because I have known the very opposite practice in several instances to have been followed within the past year in Pennsylvania. I trust they will fulfil my purpose, namely, to show the necessity of a more rational midwifery and of eliciting discussion.

Rational midwifery tells us, paradoxical as it may seem, that the history of abortion is the history of civilization. "The more civilization progresses and the greater the abhorrence of the crime, the more numerous the laws enacted against it, the more frequent does the crime become. Nevertheless the blush of shame mantled her cheeks when a member of our profession a short time ago advocated the prostitution of the obstetrical art by engaging in the production of abortion scientifically. No sophistry should ever lead or ever will lead the rational obstetrician to blacken his soul, stain our professional escutcheon in innocent fear in countenancing, let alone in lending his skill and knowledge to this God-forsaken practice.

That the duration of pregnancy is not a fixed unit,—that it may be prolonged is now pretty well substantiated. And that puerperal fever, puerperal perimetritis, etc., are all puerperal septicæmia.

The old sayings with regard to meddling midwifery must be carefully considered, not to act and give nature the benefit of your knowledge and skill is just as reprehensible as to interfere unnecessarily.

It appears to me that upon certain practices of the past rational midwifery places the stamp of disfavor. If I interpret her teaching correctly, the operation of embryotomy, embracing craniotomy and cephalotripsy above the superior strait, especially in the case of a living child, is to be known only in history; and the more humane and scientific operation of laparotomy is to take its place. Here, again, I wish to emphasize the necessity of judgment, knowledge, and skill on the part of an accoucheur. If laparotomy under these circumstances is to become the legitimate operation, it can never succeed in the hands of bunglers. The woman must not be more dead than alive, her strength departed, her soft parts contused and torn in vain efforts to deliver with the forceps, before the operation is commenced. The rational obstetrician, with his clear knowledge of the anatomy of the parts, his keen perception and his appreciation of bulk, distance, compass, and space, will be able to anticipate the necessity of the operation, and not first subject his patient to tortures as well as to place the life of mother and child in unnecessary jeopardy. I speak with measured words upon this subject. I know I am liable to be charged with fanaticism, but I believe the dawn of this new era is upon us. Yea, even now

“ With folded wings of dusky light,
Upon the purple hills she stands;
An angel between day and night
With tinted shadows in her hands.
Until erewhile transfigured there
With all her dazzling plumes unfurled,
She'll climb the crimson-colored air,
And fly in glory o'er the world.”

THE DEADLY SPUR (SECALE CORNUTUM) IN LABOR.

By G. B. DUNMIRE, A.M., M.D.,
OF PHILADELPHIA,

A MEMBER OF THE AMERICAN MEDICAL, STATE MEDICAL, PHILADELPHIA COUNTY MEDICAL,
PATHOLOGICAL, AND OBSTETRICAL SOCIETIES, ETC.

THE dangerous and fatal effects resulting from the administration of ergot in labor have for a long time been a subject of serious thought and investigation by the writer, because of its importance the world over; hence, the reason for presuming to occupy the time of the Society.

While it is true that the effects of large doses of ergot, when administered to the parturient woman, are first felt and realized by herself, and its influence is observed by us on the gastro-intestinal tract, as well as on the cerebro-spinal centres, to which it is carried by the blood, producing its well-known oxytocic effects; yet its injurious results are exerted upon the foetus *in utero*, where it is asphyxiated, and its life crushed out by the spastic contractions of the "ergotized" uterus. Because of this fact we will first consider the question of still-births in relation to the use of ergot in labor.

In his statistics of still-births, compiled by William F. Murray,¹ the average mortality of American cities is fixed at 7.6 per cent. New Haven 3.3, the lowest, while Mobile is 17.7, which high mortality Dr. Sale, of Mississippi, charges partly to ergot.

The writer² has, before this, made the statement as to his belief that the indiscriminate use of ergot by persons who were totally ignorant of its physiological action, as well as its frequent use by intelligent physicians, was an important factor in the production of the large number of still-births. As early as 1867, Dr. Meigs wrote "that multitudes of unborn chilbren are being destroyed by the abuse of ergot." But that does not answer how many.

¹ Reference Handbook of Medical Sciences, 1884.

² Transactions Ninth International Medical Congress, p. 463.

This question can be answered only by individual physicians who have administered the drug which resulted unfavorably to the foetus. How many are willing to report such cases? While it is discouraging to do so, yet, if by reporting such, we can be used to bear away any of our professional sins, we should be willing to be made the scape-goat.

To this end let us make an analysis of a number of confinements which occurred in the writer's private practice, between the years 1866 and 1880 inclusive—at a time when our knowledge of ergot did not approach its present degree of refinement, and when it was not only given, but notes were kept of such cases. Of 400 confinements there were 26 still-births from all causes, as follows:

Putrid foetuses	2
Premature births, not viable	9
Breech presentations	2
Prolapse of fundus	1
Syphilis	1
Face presentations; chin posterior; instrumental delivery	1
Unclassified; ergot given	10

While it is possible that some of the premature births may have been caused by ergot, yet we will leave all of the above, 16 in number, or 4 per cent. out of the count, excepting the 10, which were attributed to the drug in question, and which was believed to be the primary cause of the death of the foetus. For beside the fact that ergot was given, the rigidity and lividity of the child at birth would go to corroborate the same.

This alone, will make a mortality of 2.5 per cent. of the 400 births.

Here, then, we have a basis founded on fact upon which to formulate an answer to the question of mortality due to ergot. It is thought by some that nowhere in the world is there so much ergot given as in the United States. While we do not like to concede to this view, yet statistics are against us, and from what we know through observation¹ and inquiry of the amount of ergot sold and administered, even to the present time, we feel confident that 2.5 per cent. is the minimum, and therefore in the bounds of truth.

By taking the total number of births in the city of Philadelphia within the dates mentioned above, 1866 and 1880, kindly furnished

¹ See Dr. E. P. Christian's paper "Still-births, Rate, and Causes," Transactions of Ninth International Medical Congress.

by the Registrar, J. V. P. Turner, is 273,454, we find that 2.5 per cent. of the same is 6836, which equals 455 children annually lost, not only to mothers who, in many instances, would gladly have reared them, but also lost to the State and nation.

But if the mortality resulting from ergot stopped here we might, as far as we can see, easily afford to lose the $2\frac{1}{2}$ per cent. of infants; but there are other dangers, and the one which will next demand our attention is in reference to the mothers, who, as we have intimated, are second to receive injurious results by its causing

RUPTURE OF THE UTERUS.

To anyone who has looked into the face and observed the countenance of a despairing mother, as frequently witnessed in cases of rupture of the pregnant uterus, need not be reminded of its sadness; or of the compunctions of conscience felt if he has done, or left undone, anything which might have caused or diverted the sad calamity. Such has been the writer's experience, and feeling as he does, that the same is chargeable to the drug and his early instruction to carry the ergot bottle in his pocket to every case of confinement. Yet, by this it is not intended to impugn such instruction—for, the physician as well as the soldier should be fully armed—but it is intended to apply to the drilling of the recruit rather than to the veteran.

After having the experience above referred to and being impressed with the idea that much harm had been done, particularly prior to the last decade, even by physicians as well as by persons unacquainted with its power. Believing also that there were many more cases of rupture in private practice, though of infrequent occurrence, than is generally supposed. Because of the indifference among physicians in reference to reporting cases of this kind, we rarely hear of them, except through consultants. Frequently, where ruptures have been known to exist, they are registered as having died from exhaustion, after labor, or post-partum hemorrhage, which, while true as the remote causes, was not the primary. Others resulting from ergot have not been known until the post-mortem reveals the same, while others again evidently are never known. However, to substantiate the belief that more ruptures occurred than we heard of, the writer entered into a somewhat laborious task of searching for registered cases,

and through the kindness of the Registrar before referred to the records at the Board of Health in Philadelphia were gone over book by book, from the present date back to 1862, between which dates were found over fifty registered deaths from "rupture of the uterus."

A number of the physicians giving the original certificates are now deceased. But in reply to notes of inquiry nearly all of the surviving ones gave detailed and interesting as well as valuable accounts, if allowed to be published, and of vital importance in view of the facts contained.

In the fifty cases of uterine ruptures, so far as heard from, ergot had been administered to thirteen, or 26 per cent. Twelve, or 24 per cent., were in the hands of midwives. To seven, or 14 per cent., of those in the hands of midwives, ergot had been administered and rupture had taken place before a doctor was called. In one instance the physician, after responding, barely escaped a suit for malpractice, on whom the midwife endeavored to shift the responsibility. Two were in the hands of irregular practitioners, both of whom had administered ergot.

Of the number in which ergot was given, 20 per cent. occurred previous to 1880; 12 per cent. of which were in charge of midwives, while 8 per cent. were in the hands of physicians. Since 1880, 6 per cent. only have been collected, 4 per cent. of which were in the hands of midwives; one, as late as 1884, would indicate a more intelligent use of ergot by physicians during the last decade, but not so with reference to midwives.

It may be of interest to refer to the position or presentation of the fœtus in some cases, so far as heard from, in which ergot had been absurdly administered; 18 per cent. of which are here mentioned:

Pelvis presentation	.	.	.	.	.	.	.	.	4
O. D. P.	"	.	.	.	.	.	.	.	3
Shoulder	"	.	.	.	.	.	.	.	1
O. L. A., more than usually ossified head	.	.	.	.	.	.	.	.	1

It would be interesting also, at this point, to give details of cases, but that would make our paper longer than intended.

To illustrate, however, the power of the drug, we will give one in brief of many in our possession.

A case of breech presentation in a primipara, aged twenty-two, strong and well, to whom one fluidounce of the extract of ergot had been administered, and rupture with the usual symptoms was the result. Child undelivered. Post-mortem revealed a transverse rupture across the fundus, sufficiently large to allow the head and neck of the foetus to escape into the abdominal cavity as far as the shoulders, which, with the remainder of the child, was in the uterus. The tissues of the womb seemed sound and healthy.

What a sad commentary the above facts present. But if we leave the same to take care of themselves, and take up some points in reference to the danger resulting from the use of ergot in labor, we are led to say that it would be a boon to the parturient woman if the harm stopped here; for, were it not for the present advance in gynecology, not, however, within reach of all, rupture of the womb and death of the mother would often be preferable, than to suffer, as many are afterward destined, to drag out a miserable existence, alike repulsive to themselves as well as their friends, on account of the abuse of a drug so potent for good or for evil.

The lacerations of the cervix uteri and vaginal walls, causing vesico- and recto-vaginal fistula, with rupture of the perineum, to be followed by vaginitis, pelvic cellulitis, or sphacelus, with all their attending evils and discomforts, as well as the nervous complications arising therefrom. It is only the sufferers from such ills that can properly appreciate and realize their magnitude. We hear no more from intelligent physicians of the inertness of ergot; in fact, its power to contract the non-striated muscular fibre is demonstrated by means of the microscope to actual vision, and we are glad to know that through his writings Dr. Engelmann boldly asserts that he considers the use of ergot entirely unnecessary in the pregnant woman, as well as many others who have declared openly the same opinion.

There are, however, other points to which we would like to allude briefly. Many accoucheurs, up to this time, think that it is needful when there is marked

INERTIA OF THE UTERUS.

To this we reply, it is not only a dangerous remedy in view of the risk of producing spastic contraction of the uterus and death of the child, which is certain, but also of rupturing the same. For the very fact of the inertia would indicate a feebleness of the uterine tissue, and, further, what we may consider inertia might

simply be Nature's plan to give a tired organ rest, which, after having rested, will resume its work and continue to a final and successful conclusion. Whereas, by our interference, we not only meddle with Nature's plans, but hinder the proper moulding of the presenting part to the capacity of the outlet, as well as interfere with the relaxing of the tissues of the birth-canal, so essential to the mother's safety and future comfort. Others again recommend small doses,¹ with the hope of augmenting the normal, without producing tonic contractions, which are so fatal to the infant.

This again is dangerous, for so frequently we have observed cases in which the patient showed a peculiar susceptibility to the influence of ergot, and such violent contractions were brought about even by the use of small doses that it was utterly beyond our power to control them. Besides it is possible for us to produce equally as good results from safer means, such as quinine, cannabis indica, digitalis, or even diffusive stimulants or the ever-reliable forceps.

In fact, one of the chief dangers, if you have the influence of the drug at all, is the possibility of producing such violent and persistent uterine contractions that it is alarming to witness, and as useless to try to check the same, as to have stopped the flood of waters in the Conemaugh Valley from tearing all before it. Then, again, it is given, and more frequently so at the present time, at the end of the second stage of labor. Here, too, we may make a mistake, in view of the possibility of shutting up an adherent placenta so tightly in the spastically contracted uterus that it will require great effort to introduce the hand and extract the same.

In reference to the fear of hemorrhage, there is time enough after the uterus is empty of its secundines. If necessary, resort to compression and flexion of the uterus, or to hypodermic use of ergot or hot-water injections. We need not fear being able to control post-partum hemorrhage.

CONCLUSIONS.

1. That it is safer not to administer ergot until the completion of the third stage of labor.
2. That institutions—chartered, if necessary—for the instruction of midwives in the art of midwifery be encouraged.

¹ American System of Obstetrics, vol. i. p. 698.

3. That all practising midwives be required to prove their ability, by provisions under a law regulating a State Board of Medical Examiners, who shall certify to the same. Even then midwives should not be allowed to administer ergot, or druggists sell the same, without a physician's prescription and supervision.

4. To lessen the ratio of mortality in the unborn—the aggregate of which in the State is enormous, Philadelphia alone contributing over 25,000 since 1861—that all suspicious, obscure, and sudden death of fetuses or mothers during gestation or parturition be investigated by the coroner, and if the cause of death be due to the abuse of ergot the guilty be held amenable.

REQUISITE PREPARATION FOR ABDOMINAL WORK.

BY MORDECAI PRICE, M.D.,
OF PHILADELPHIA.

MY reason for presenting this subject to your notice is the very prevalent mania, both among physicians and surgeons, to engage in abdominal surgery, in many instances without the most rudimentary preparation for the work. They proceed with the seeming presumption that the requisite skill and knowledge will come to them intuitively.

In all the arts, in every branch of mechanics, men are trained for special work. You would not take your watch to a shoemaker, neither would you expect a fine piece of cabinet work from a carpenter; mere taste or inclination for certain kinds of work does not necessarily imply special aptitude or fitness for the work.

In this, more than in any other branch of surgery, experience and practice under competent teachers, a study of the best methods of the masters, are necessary. In fact, he should know all that has been written on the subject for the last five years. He should have served his apprenticeship, after leaving college, in public or private clinic and hospital work, examination of patients, and the selection of cases for operative treatment, under men who have had long experience and familiarity with diseased conditions of internal viscera; and be able to select the diseased conditions wherever found. Only by such sacrifice of time and money can any man be competent to do good work; this, to be sure, is presumed to follow a thorough anatomical knowledge of the viscera in health.

No man can be a surgeon who is not competent to make a diagnosis. The old surgical law requiring a man to sound for stone at time of operation is as binding to-day as it was when that law was first promulgated. The same law applies to abdominal surgery—not to operate unless you have something to operate for.

The safety of his patients depends entirely on his ability to properly recognize the disease for which an operation is required.

There is a prevailing opinion, both among the older men of the profession as well as the younger, that all that is required of them for this special work has been acquired while looking down from the topmost benches of a hospital or college operating room, watching some great operator in removing, it may be, a simple ovarian cyst, non-adherent, and therefore as easy to remove as it would be to vaccinate a baby, and with this extensive experience he goes forth to enter the field of his special life work. The consequence is, and always will be, a terrible mortality.

An operator must have his anatomy—not only normal, but pathological—at his finger-ends, for there only will it be of service to him in pelvic and abdominal operations. Anyone can do what is plainly before his eyes; it is in the dark and hidden places of the pelvis and deep abdominal viscera where the master of this work will show his hand.

In some of the inflammatory conditions in the pelvis all the anatomical landmarks have been removed, and in their place inflammatory thickening and induration to such an extent that anyone not long versed in such work would do far greater damage in his attempts to remove the diseased condition than if he had left the patient alone. To be able to deal with such conditions requires years of experience by the side of some one who is able to do the work; and if it is your lot to be so associated thousands of dollars and great loss of time and many anxious hours will be the penalty you will pay for the requisite knowledge and experience to do some of the grandest work in surgery—the restoration of thousands of bedridden and utterly helpless patients to health and usefulness.

You may question the thousands of dollars and the time it requires to accomplish this. In the experience of one operator alone, his first ten years' work with his first one hundred abdominal sections paid for his car-fare and his bag of instruments. In my first fifty abdominal sections the remuneration was about as extensive.

The incompetency of an operator may be measured by his incomplete and exploratory operations. The few successes attending such operations have but little to recommend them, when we compare them with the many not relieved, but their conditions greatly aggravated by the incomplete operation. It has been said by one of England's greatest operators that an operation once begun should

be finished at any cost. I must say I endorse this radical view; it may seem extreme doctrine, but experience bears me out in it. When I make this statement, it is understood that the man operating is one thoroughly competent, and knows what he is doing. Patients, as a rule, do badly unless every particle of the disease has been removed.

Can a beginner without experience and special training think for a moment of doing this work successfully? There is no possible way of knowing before an operation the difficult from the easy cases. His first case may be a dermoid or an incysted extra-uterine pregnancy, with adhesions to every square inch—an operation that would test the skill and judgment of the most experienced operator in the land.

If these cases test the skill of a veteran, what would be the result in the hands of a beginner? Would a man think, as a beginner in ophthalmic surgery, of doing an operation on the eye without special training? Yet every step of such operation is in plain view, while that of abdominal surgery, much of it, depends on the sense of touch.

There is no branch in medicine or surgery that, the beginner thinks, requires so little preparation, so little knowledge, to fit him for special work as in the field of abdominal surgery. If we may judge by much of the work we hear of and many of the men who are doing it, their utter unfitness for the high position is shown by the terrible consequences of their work. I will give you two examples to show you the character of said work:

You all remember only a short time ago of a noted cutting and shooting affray in Kentucky when a deservedly celebrated surgeon operated for a bullet wound of the intestine. His first mistake was in waiting for symptoms; second, not being properly armed to do the work; third, in being two hours in doing the work. I venture there is not an abdominal surgeon from Maine to Georgia who did not say, when he saw the length of time consumed by the operation, that death would be the result. This is a fair sample of the old surgeons' methods and manner of doing abdominal surgery.

Second case: The young man just beginning practice looks around among his limited female patrons to begin his education. He finds her in the person of a pregnant woman at full term with a pelvis blocked with a fibroid tumor imbedded in the walls of the uterus. Here is a chance for immortal fame. He does not know

the teachings on the subject, nor does he inquire. A Cæsarean section is decided upon; numerous friends are invited to see a young surgeon born into full knowledge of his subject at the same moment he delivers a new-born by the Cæsarean method. He stitches up the uterus, and then proceeds to enucleate the fibroid. Two long hours are consumed in the operation, a full-fledged surgeon has been produced, a babe has been born, the mother has gone to eternity.

This is not an overdrawn picture; these are facts, and I could relate others equally as bad.

In the *Medical and Surgical Reporter*, May number, is a report of abdominal surgery in Cuba. "According to Dr. Barrena, the results of abdominal surgery, as practised by himself and some of the other leading surgeons in Cuba, have hardly been as satisfactory as could be desired. Of 39 cases of ovariectomy, 12 were fatal. Of 11 cases of hysterectomy, no less than 9 were fatal. 3 cases of miomectomy, 3 of salpingotomy, and 1 of ligature of the tubes, were all successful; but 4 of exploratory incision proved fatal to 3 patients, and the only case of vaginal hysterectomy was also fatal. Altogether, out of 62 persons operated on, no less than 25 died."

This report comes from a justly celebrated surgeon in Cuba, but who, judging from his report, knows nothing of abdominal surgery. He has neglected to do those things he ought to have done, and done those things he ought not to have done; and there is but one help for it, and that is, to know how to do the work before trying to do it.

SUPPURATING ULCER OF THE CORNEA.

By EDWARD JACKSON, A.M., M.D.,

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC.

For the present purpose it is convenient to regard corneal ulcers as divided into two classes, the simple and the suppurating.

In the former the loss of substance constituting the ulcer is surrounded by clear, apparently normal corneal tissue, or by tissue moderately infiltrated with plastic material; in the latter the surrounding tissue is, to some extent, softened and infiltrated with pus.

The simple ulcers include those ordinarily seen in neuro-paralytic, malarial, or phlyctenular keratitis, and many of those due to injury of the cornea, or accompanying catarrhal forms of conjunctivitis. The suppurating ulcers arise from infection, sometimes from primary infection either on the surface constituting an ulcer from the start, sometimes from deeper infection, starting as corneal abscess. Certain injuries are particularly prone to give rise to suppurating ulcers.

The simple ulcer, too, is quite liable to become infected, and pass over into the suppurating class. While, on the other hand, it is the endeavor of the surgeon by appropriate treatment to deprive the suppurating ulcer of its peculiar character and carry it over into the class of the simple.

The majority of ulcers that perforate the cornea belong to the class we are considering, and a very large proportion of suppurating ulcers, unless checked by appropriate treatment, go on to perforation of the cornea.

The management of one of these cases, so long as it maintains its special suppurative character, is always a cause of anxiety and annoyance to the surgeon. For not only is there danger of perforation leaving adherent leucoma and permanent opacity of the cornea, but in a considerable proportion of cases the pus makes its

way into deeper parts of the cornea, causing onyx or hypopyon, and the suppurative process extending still further is liable to cause the complete functional destruction of the eye.

In this form of ulcer the general disturbance of the whole eyeball is usually considerable, the pain severe, the hyperæmia marked. But the diagnosis is to be made principally by inspection of the ulcer itself. Plastic exudation into the cornea, and chronic opacities of the cornea are gray. Purulent opacity is yellowish. Sometimes fine vessels give to other opacities a somewhat yellow color, but in such cases careful examination under a strong lens will reveal the individual vessels. In addition to the yellow color it presents, the tissue involved in the suppurative process is greatly softened.

Passing directly from the practical matter of diagnosis to the practical matter of treatment, the gravity of this affection has, with reason, been held to justify recourse to vigorous measures of treatment. In the more serious cases, especially the so-called *ulcus serpens*, incision extending through all the layers of the cornea and from the sound tissue on one side to the sound tissue on the other, was a few years ago the accepted standard treatment. Milder cases were to be met by a vigorous scraping away of the surface of the ulcer. More recently the actual cautery or the galvano-cautery, for the destruction by heat of the infected tissue, has been quite generally resorted to with good results. And it is the treatment to which I should resort if the following method had not given even better results, as to the amount of permanent opacity left by the disease.

The surface of the ulcer is to be carefully scraped with a blunt instrument, such as the corneal spud, until all tissue soft enough to be readily scraped away has been so removed, and the purulent exudate has been squeezed out of the tissue around it. This manipulation reveals the real depth of the ulcer, considerably narrows the area of noticeable infiltration, and enables the surgeon to make his subsequent application directly to the seat of conflict between the living tissue, and the invading pyogenic bacteria. The scraping should be repeated whenever any renewed extension of the area of purulent infiltration is noticeable; whether that be in six, twelve, or twenty-four hours; and so often as there is this indication for it.

Immediately after each scraping the surface of the ulcer is to be

thoroughly washed with a solution of bichloride of mercury of from 1:1000 to 1:3000. This is done by filling the ordinary rubber-bulb pipette or dropper with the solution, holding its nozzle in close proximity to the ulcer, and then ejecting the fluid with considerable force against its surface.

In addition, the patient is to have the eye thoroughly cleansed every one, two, or three hours with a solution of mercuric chloride of 1:3000 or 1:5000. And two or three times a day the closed lids are to be bathed, for five minutes or longer, with water as hot as the patient can bear. The length of the hot-water applications is to be proportioned inversely to the inflammatory hyperæmia. When the general inflammatory reaction seems greatly below what should attend the suppurative process going on in the cornea, each application of hot water may be continued fifteen or twenty minutes, and the application may be more frequently repeated.

The pain of this scraping and washing may be brought within reasonable limits by the use of cocaine. When corneal abscess is to be dealt with, it is to be opened freely, and at once; and then treated as a suppurating ulcer. The eyes should be kept at rest for some days, and perhaps shaded during this time; and anything like poulticing or bandaging carefully avoided. As the ulcer loses its special suppurative character, this special line of treatment may be abandoned, except that the use of the milder solution of mercuric chloride should not be given up until the healing is pretty well completed.

The line of treatment thus indicated is essentially the one I have followed for a little over two and a half years. The results obtained with it have been very satisfactory. Of the eighteen cases of suppurating ulcer that have during that period been under my care, but three have gone on to perforation of the cornea, and these three are exceptions that may truly be said to prove the rule, since they were not at the time the perforation occurred under this treatment.

CASE I.—S. H. M., a colored boy, nine years old, was brought to the clinic with an ulcer near the outer margin of the right cornea, this was regarded as a phlyctenular ulcer, and so treated. He neglected to return until the fourth day when the ulcer had perforated, allowing a small round prolapse of the iris. The margins of the ulcer presented purulent infiltration. They were treated by the above method and quickly healed. Eserine failed to reduce the prolapse, which was snipped off three weeks later. The eye

was left with a small peripheral adherent leucoma, a free circular pupil and good vision.

CASE II.—A girl, aged three and a half years, was brought with a central suppurating ulcer of the cornea, which was treated according to the plan recommended. Next day there was great improvement. Two weeks later she was brought back with the ulcer greatly extended and its floor and sides a mass of sloughing tissue. The history given was that after the second visit it seemed so nearly well that the mother thought it not worth while to return, and in two or three days discontinued the use of the bichloride solution at home. It had been getting worse again for nearly a week. On attempting to fix the eye for the scraping, the floor of the ulcer gave way, and the aqueous humor escaped with a spurt. The treatment was now regularly pursued, and the ulcer healed rapidly, leaving no synechia, but a central leucoma preventing any good vision.

CASE III.—A child, three years old. Brought to the clinic in my absence and treated as a case of phlyctenular ulcer without scraping or bichloride. At the second visit the floor of the ulcer was found sloughy, and it readily perforated during the scraping. Recovery was prompt, with a small leucoma and one thread-like synechia.

It will be noted that in two of these cases perforation occurred at the time of the scraping, but it cannot be blamed on the special instrument or manipulation employed. It would be quite as likely to follow any other local manipulation and treatment. Possibly in some such cases it may be avoided by a previous tapping of the anterior chamber through some other part of the cornea, a procedure I resorted to with success in one of the cases treated after this plan.

ERRORS OF REFRACTION DEVELOPED BY LOSS OF ACCOMMODATION, AND THEIR TREATMENT.

By G. H. CLINE, M.D.,
OF JERSEY SHORE.

Loss of accommodation is said to be the normal physiological weakening of age. The lens may, from disturbance of its nutrition, undergo molecular changes, thereby losing its elasticity and brilliancy. The amount of resistance to changes in its curvature by the action of the ciliary muscle is increased. The muscles of accommodation are in a weakened condition, from a continued effort to overcome some existing refractive defect of the media, as an hypermetropia or astigmatism. The hypermetropic person has already used some of his accommodation to see at a distance, and when he wishes to look near at hand he has not so much more at his disposal. Thus, after continued use, the hypermetropic eye becomes tired and incapable of continuing its work, notwithstanding all its efforts. We then have a condition of asthenopia. The patient affected with this weakness tells us: "When I begin to read or write, at first I feel and see very well, but after using my eyes for some time I suffer from a feeling of heaviness in them, and of pressure on the forehead; the letters of the book which I am reading get mixed together and I am obliged to stop. After a short rest, after rubbing my eyes, I can begin anew, only to feel again fatigued; and, having struggled on for a short time, at last I feel quite unable to continue my work. In the morning I am less easily fatigued; the same is true of Monday after the rest of Sunday."

Where the degree of hypermetropia or other refractive defect is slight, little if any inconvenience is felt until it is made manifest by the failure in accommodation.

Could we estimate the amount of muscular force called into use

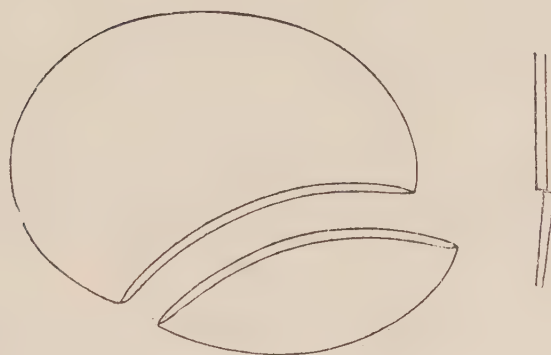
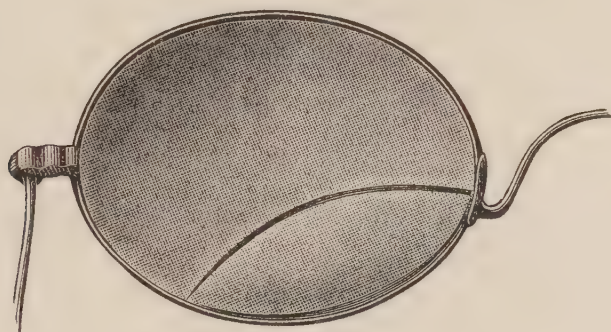
every twenty-four hours by the muscles of accommodation—in adapting the eyes to receive impressions upon the retina between the distant and near points of distinct vision—when the refractive media are normal, as in the emmetrope, we would be able to calculate approximately the increased muscular force necessary in the ametrope. Here, in addition to the force expended in the normal condition of the eyes, would be added the force necessary to bring the imperfect impression of the hypermetrope to a clear impression upon his macula. With this are called into action the muscles of convergence, to bring the two fovea upon the posterior poles of the visual axes, and hold them in that position, as in reading, writing, and the inspection of objects close at hand—as, in order that an object be seen singly with both eyes, its image must be formed on corresponding points of both retinae.

During the waking hours there is constantly mirrored upon the field of the retinae impressions of our surroundings, both of monocular and binocular vision, along the line of accommodation from the punctum proximum to the punctum remotum. If, then, these impressions are not a conception of the brain, except when we fix upon any particular object so as to study it intelligently or appreciate it, the muscles of accommodation and convergence change the position of the two retinae, so as to bring their maculae into proper position, and hold them in that position; these impressions must be made on corresponding points of the maculae in order that the picture carried to the brain by the axis cylinders of the optic nerve be as perfect as to detail as would be the same object reflected from the polished surface of a mirror. In other words, impressions made upon the retina when the eyes are at rest are monocular, and when the muscles of accommodation and convergence fix upon the object, bringing the fovea centralis upon the posterior poles of the visual axes, we have binocular vision.

“The convergence of the visual lines presents no difficulty. The power of vision is usually acute; and nevertheless, in reading, writing, or other close work, especially by artificial light, or in darkened room, the objects after a short time become indistinct and blurred, and a feeling of tension comes on, especially above the eyes, necessitating the suspension of work. The person so affected now often involuntarily closes the eyes, rubbing his hand over the forehead and eyelids. After some moments of rest he again sees distinctly, but the same condition recurs more rapidly than before.”—*Donders.*

It would be important to determine, if possible, the exact amount of exercise which a healthy adult should take each day. Dr. Parkes says we can perhaps say, as an approximation, that every healthy adult ought, if possible, to take a daily amount of exercise in some way which shall not be less than one hundred and fifty tons lifted one foot. Now, if this amount of muscular force is conducive to health, what must be the proportion of this force exercised by the ocular muscles in vision? The eyes are in constant use during the waking hours, the macula are continually receiving impressions, either from monocular or binocular vision, which impressions are as often reversed by the axis cylinders of the optic nerve on their way to the brain. The muscles of accommodation and convergence are continually changing for near and distant objects, or converging to bring the macula on the posterior poles of the visual axes in fixation and holding them there for the inspection of some minute object; then again relaxing to take an impression of the landscape. This changing of impressions continues uninterruptedly during the day. If we admit all this force called into use in vision conducive to health in the emmetrope, what must be the additional force called into use in the ametropes? Here the impressions received on the retina are afterward transmitted to the brain even though the muscles of accommodation and convergence have failed to procure a perfect impression on the retina, thus producing on the nerve centres serious disturbance. Not only do the muscles of accommodation and convergence suffer severe strain from constant use during the day, but this excessive strain sometimes produces exhaustion, either by an accumulation in them of the products of their own action or from the exhaustion of the supply of oxygen. The rest obtained in the interval of action not being sufficient for the muscles to recover their neutrality and their normal condition and again acquire oxygen in a sufficient quantity to entirely restore them, this prolonged exertion, without sufficient rest, checks to a certain extent the nutrition of the muscles and they become weakened, thus becoming an important factor in many of the refractive troubles which in the end require for their alleviation the use of spectacles. From observation it will be noticed in persons using spectacles for near vision, as in reading, writing, etc., that the line of vision is through the lower and inner quadrant of their spectacles and not through the axes of the lenses. This forces us to one conclusion, that the lens must act as a prism base-up, producing a disagree-

able straining effect on vision, and not properly correcting the patient's refractive defect; this defect could be remedied by decentering the lenses in the direction of the line of vision for near, but in doing this the distant vision would be through a prism base-down. A rule to be observed in optics is, that the plane of the lens should be perpendicular to line of vision. Accuracy in this cannot be too strictly carried out, for the reason that rays passing obliquely through a lens, particularly outside its axis, focus at different points, producing aberration. Therefore, a lens intended for constant use will not answer the indications for near and distant vision, because the media or lens cannot by the motion of the head be placed perpendicular to a line drawn from the object through it to



the macula, which must of necessity produce blurred and imperfect vision, with asthenopic symptoms. If, then, to correct vision properly with lenses the line of vision must be as nearly as possible through its focal centre, suppose the optical centres to be 57 mm. for near and 60 mm. for distant vision, would you divide as to near and distant centring, or would it be best to centre for near? I can readily see the way out of this dilemma in bifocal lenses where spectacles are for constant use. The near lens should be in

the lower and inner quadrant of the spectacle, occupying about one-fourth of the space. The upper or distance lens will then occupy the balance of the spectacle. The diagram on page 227 will serve to explain, the lower or near lens being placed with one horn of the lens at the lower temporal edge and the other horn at the middle nasal edge of the spectacles. A line drawn from one horn to the other, across the lens, is the axis upon which the top of the lower lens can be rotated forward and the bottom edge backward, thereby so changing the plane of the lower lens in relation to the upper or distance lens as to cause it to face downward and to the median plane—*i. e.*, perpendicular to the line of vision in reading, writing, etc., within a range of, say, 33 cm. in front of the eyes. The upper or distance lens fills the upper and temporal three-fourths of the spectacles, and is bevelled on the lower curved edge so as to allow it to receive the upper edge of the lower or near lens at an obtuse angle to its plane, and hold it or lock it in that position. The upper temporal edge of the distance lens is thrown backward, and, when fitted in the spectacles along with the near lens, its plane is vertical without elevating the chin, as is often the case where attempts are made to adapt spectacles to near and distant vision in either single or bifocal lenses. A rule to be observed in the construction of bifocal spectacles is, the line of vision should be as nearly as possible through the axes of the lenses. As distant vision is parallel and near vision convergent, it will be found that the distance between the optical centres in divergent or distant vision will be from 3 to 5 mm. greater than in convergent or near vision. Now, in order to observe this rule, my lenses for distant vision are placed in the upper temporal sides of the spectacles and occupy about three-fourths of the same; this places their axes slightly divergent, as in distant vision. The lenses for near vision are placed in the lower nasal side of the spectacles and occupy one-fourth of the same; this will bring their axes convergent.

A rule to be closely observed in placing lenses before the eyes, to correct defects in vision, is that the plane of the lenses should be perpendicular to the line of vision, or, in other words, light passing through the lens should pass at right angles with its plane or surface. This being the fact, spectacles made with lenses for both near and distant vision in the same spectacles (bifocal specs) must be made to answer this indication.

Bifocal spectacles will fully answer both indications; and more,

near and distant vision can be accomplished with but slight movement of the head to adapt or bring the plane of the lenses perpendicular to line of vision; the near lenses must be adapted to convergence, as movements of the head will not bring the plane of lenses vertical to near vision. Bifocal spectacles should be so constructed as to answer these indications, otherwise their use will prove very unsatisfactory from aberration and blurring for near vision and disturbance in distant vision, as in avoiding obstructions in walking, descending stairs, etc.

The treatment of loss of accommodation in which there is an existing refraction defect, no matter how slight, either of hypermetropia, astigmatism, or both, is with bifocal spectacles so constructed with reference to near and distant vision that their constant use will be a pleasure to the wearer and a complete relief to all asthenopic symptoms.

From my case-book I now introduce cases illustrative of the plan usually adopted:

CASE I.—Captain J. E. P., aged forty-eight, lawyer, has suffered with vertigo, dizziness, and pain in and over the eyes for several years; used plus glasses for near work for some time without relief. March 15, 1888, upon examination, I found his acuity: Right, $\frac{20}{LXX}$. Left, $\frac{20}{XXX}$.

Prescribed the following spectacles. For distant vision: Right, + 1. \bigcirc + 50 cy. ax. 170°. Left, + 50 cy. ax. 10°. For near: Right, + 3. \bigcirc + 50 cy. ax. 170°. Left, + 2. \bigcirc + 50 cy. ax. 10°. The use of the two spectacles as above gave entire relief of all asthenopic symptoms, but the continued changing of the glasses for near and distance annoyed him, and, at his request, I procured him spectacles with the near and distance lenses in the same frame. These he has worn constantly with complete satisfaction; to use his own words, "Nothing could induce me to go back to the use of the old spectacles, so long as bifocal spectacles like these could be procured."

CASE II.—Mrs. M. W., aged fifty-three, had frequent attacks of headache which the glasses used did not relieve, the fact being that the glasses used were got of a dealer, and not adapted to the refractive trouble. This condition had existed for ten years. March 3, 1889, her acuity was: Right, $\frac{20}{CC}$. Left, $\frac{20}{C}$. Ordered the following bifocal spectacles:

Right, + 2. 25 Sph.; Left, + 2. Sph. for distance, and Right, + 4. 50 Sph.; Left, + 4. Sph. for near. This patient has worn the above glasses continually with complete relief from all the asthenopic symptoms, and has not the annoyance of continually changing her glasses for near and distant vision.

CASE III.—C. D. M., aged sixty-five; had worn plus glasses about thirty years. October 10, 1889: Acuity—Right, $\frac{20}{CCCC}$. Left, $\frac{20}{CCC}$. Here is a case with a high degree of hypermetropia, with loss of accommodation. Prescribed the following bifocal spectacles for constant use:

Right, + 5 Sph.; Left, + 5 Sph., for distance, and Right, + 12 Sph.; Left, + 12 Sph., for near vision. Optical centres for distance, 60 mm.; for near, 57 mm. Before ordering the glasses I informed my patient that they might not prove satisfactory owing to the high power of the glasses. I also urged the optician to adhere to the rule of having the plane of the lenses perpendicular to line of vision. Much to my surprise, upon adjusting the glasses my patient could distinguish objects at a distance to his entire satisfaction, and could read ordinary print without any difficulty. The fact that he has worn the glasses constantly since last October with entire satisfaction proves the practicability of bifocal lenses in high degrees of hypermetropia with loss of accommodation.

A score or more of cases might be quoted illustrative of this plan of prescribing glasses in cases of hypermetropia, astigmatism, or both, with loss of accommodation; but in order not to detain you longer with so dry a subject, particularly my friends who are opposed to special subjects as matter of papers or discussion at meetings of this Society, I will conclude my paper after referring briefly to the following:

There is no rule that can be followed with any degree of safety in prescribing for refractive troubles of this kind; every individual case will be found to be a study within itself, taxing at times our utmost skill in threading our way over the many shoals and quicksands that lie hidden in our path.

We may, however, succeed in observing the following:

First, see that the glasses are properly adjusted, and urge upon your patient the importance of education to their use.

Second, that a period of at least thirty days' constant use is necessary in adapting them to the eyes.

MELANOTIC SARCOMA OF THE CHOROID AND CILIARY BODY.

BY WILLIAM C. BANE, M.D.,
OF PITTSBURG.

IN submitting for your consideration the following brief report of a case of sarcoma of the choroid and ciliary body, I do not present anything new, yet a report that ought to be of interest to all practitioners.

On January 17, 1889, Mr. J. C., aged sixty-two, called at my office, at the request of his family physician, Dr. B. F. Hill, to consult me about his right eye. About four months previous the patient first noticed that while looking with his right eye it was like looking through a mist. Being accustomed to using a field-glass with that eye every few days, he was able to detect early the change in the eye. The vision failed gradually; lachrymation, but no pain.

With the right eye the hand could be seen dimly at twenty inches. Vision of the left eye normal. Tension of right eye plus.

Upon examination of the right eye I observed that the surface of the lower outer quadrant of the ball projected and was somewhat nodular, with enlargement and tortuosity of the bloodvessels in that region. Iris irregularly dilated and bulging, and in the centre of the lower outer quadrant it was detached at its periphery for about 4 mm. Lens partially cataractous and displaced upward and inward, having a swollen appearance. Examination with the ophthalmoscope and lens revealed a dark nodular mass developing from the floor of the lower outer quadrant of the ball. Light located in lower half of field of vision. In upper half unable to see anything.

After giving my opinion on the case, I learned that the patient had previously consulted Dr. Lippincott, from whom he received a correct opinion with proper advice—*i. e.*, early enucleation of the eye. The patient still hesitating, I had Dr. A. M. Spear see him in consultation, who, after a careful examination, confirmed the diagnosis and advised early removal.

On February 9, 1889, with the assistance of Drs. Dickson and Runion, I enucleated the diseased eye. After removal of the eye, I took hold of the remaining portion of the nerve with the forceps—guiding it with the index-finger of the left hand—and cut off three-eighths of an inch of the nerve.

Section of the eye revealed a somewhat nodular growth on the floor of the ball, of a dark gray color, about five-eighths of an inch in diameter and five-sixteenths of an inch thick.

I handed the specimen to my colleague, Dr. E. G. Matson, Professor of Pathology in the Western Pennsylvania Medical College, for microscopical examination.

Dr. Matson reported the growth to be a melanotic spindle-celled sarcoma, involving a part of the choroid and ciliary body.

About seventeen months have elapsed since the removal of the eye, with no manifestation of a secondary development.

THE CONTINUOUS APPLICATION OF DRY OR MOIST HEAT BY STEAM.

By G. M. SHILLITO, M.D.,
OF ALLEGHENY.

I THINK it will be at once conceded that no two agents in the treatment of disease are so valuable to the practitioner, either in private or hospital practice, as *heat* and *moisture*; but the difficulty usually experienced, even with the best nursing service we are able to command, is in having these agents properly applied without exposing our patients to some danger in making changes from cold to hot ones.

So great is this danger often that the results may be said to be dubious, or, at least, questionable. This uncertainty led me to make some experiments toward the continuous application of heat that would be free from the objections named.

My first thought was of hot water, and to pattern after some of the arrangements in use for making cold applications. But with any device that could be arranged it was found to be objectionable for many reasons, the most apparent being the necessity for a constant and large supply of hot water, and if used to good purpose was objectionable on account of its great weight; besides, such an apparatus or arrangement must be permanent.

Steam was next thought of, and, with a crudely improvised arrangement, consisting of a half-gallon oil-can, some gum tubing, a tin disk made by the nearest tinner, a trial was made; but the heat was very much in excess of any possible need. This objection was at once remedied by interposing a compress between the disk and the part to which the heat was to be applied, and later by covering it with repeated layers of sheet cotton, and in this way so diffuse the heat as to give any degree desired.

It was now only necessary to construct an apparatus so perfected in details as would make it of practical application.

Before this was completed, however, I was called to see a lady suffering from puerperal fever following an abortion produced in a neighboring city, and who had returned to her home the week following, this being about the fourth day since the onset of the inflammation. The abdomen was excessively tender; there was a frequent, thready pulse, frequent vomiting, and constant hiccough. An imperfect apparatus was at once applied, and after twenty-four hours her condition was perceptibly improved. At the end of two days the abdomen was much less tender, the vomiting had ceased altogether, and we began to entertain hopes of her recovery, though the hiccough continued for one week longer. The apparatus was at this time in constant use for fourteen days without having for one moment cooled. At the end of this time she had so improved that the heat was discontinued; but two days later the pain returned, with other threatening symptoms, when she begged of us that we reapply the heat, which was now continued for nearly two weeks longer. All through this case, with any increase of pain, she would ask that we increase the heat.

This apparatus has been used by others than myself in peritonitis, enteritis, pneumonia, and pleurisy, and upon the patients of Dr. Lippincott in the Allegheny General Hospital, with quite as satisfactory results as in the case of puerperal fever.

The application of heat in this way may be continuously dry; but if moisture is desired, a saturated compress may be applied under the disk upon the part, which may be either medicated or plain.

It is not the purpose of this paper to discuss heat and moisture as remedial agents, but to suggest an easy, convenient, and efficient way of applying them.

The apparatus consists of a copper boiler placed on a small gas-stove for generating steam. To a short nipple on the boiler is attached four inches of cloth-insertion tubing, which is covered by a coil of wire for support; from this a tin tube conveys the steam to the side of the bed, where about one foot of tubing (covered by wire to give it flexibility) intervenes between the tin tube and the disk from which we derive the heat; this hollow disk is made of two thin sheets of brass closely soldered at the edges, and of any shape that may be desired, with an attachment for the inlet of steam and an opening at the most pendant part for the relief of condensation. This disk must be covered by about four layers of sheet cotton for the purpose of diffusing the heat, and may be supported upon a rack of cross-wires to relieve the part of any weight. A piece of gum tubing for carrying off the condensed

steam to a vessel for its reception is attached to the drip-tube of this disk, and the apparatus is complete. The object of the flexible parts is that the apparatus may be laid aside when changes are necessary to be made about the patient without interfering with its operation. The uses to which this apparatus may be applied are as varied as the necessity for applying heat and moisture.

What degree of heat can be permanently maintained in this way? With the consumption of two feet of gas per hour, a thermometer placed upon the part, with the disk raised one inch from the surface, gives a temperature of 130 degrees, and the consumption of four feet will raise the temperature to about 170 degrees.

I have no hesitation in saying that moist or dry heat can be applied continuously in this way to any part of the body where it may be desired, and at a cost of about three cubic feet of gas per hour.

Soon after satisfactory trial had been made of this apparatus, a photograph, with a description of it, was sent to Drs. Goodell, of Philadelphia, and Mundé, of New York, and I have received the following replies. Dr. Goodell says :

“Your apparatus for applying heat strikes me as a remarkably excellent one, and I certainly shall employ it in my hospital cases.”

Dr. Mundé says :

“In reply to your favor of the 16th of May : I consider your device for the continuous application of dry or moist heat exceedingly ingenious and, without doubt, practical. The device is of much interest to the profession at large.”

“LA GRIPPE,” OR EPIDEMIC INFLUENZA.

BY A. B. BRUMBAUGH, M.D.,
OF HUNTINGDON.

FOR centuries the existence of epidemic influenza has been recognized, and the history of the disease has been definitely traced for one-half a century, spreading in different parts of the world; sometimes made memorable by being associated with political and other important events. It is not my purpose to trace the history of these epidemics, nor to enter into a discussion of the causation, but to offer some reflections upon the malady recognized as “La Grippe,” as it appeared in central Pennsylvania, and as I observed it in the treatment of several hundred cases during the latter part of last year and the early months of the present year.

The general type of the cases was severe; but all the symptoms in all the cases were by no means uniform, nor were they those ordinarily recognized as the symptoms of influenza or catarrh, in the incipency of the attack. The gravity of the cases varied from the mildest indisposition to the gravest sickness, endangering life and even causing death. The symptoms that were uniform were almost identical with those of variola up to the stage of eruption, and even that condition was present in a limited number of cases, passing away with the relief of the severe cerebral and spinal symptoms. The eruption, as observed, was between that of an ecchymosis and papillæ, and continued usually about thirty-six to forty-eight hours, when it passed away, leaving the skin slightly mottled and roughened. In some cases the eruption gave considerable alarm to patients and friends; but, being only a reflex or sympathetic condition, it passed away with the causes producing it. The initiatory chill, severe headache, pains in the back and joints, high fever, muscular pains in all parts of the body, and the limbs as far as the elbows and knee-joints (rarely beyond), marked

depression of physical strength and mental energy, were the prominent symptoms present in all severe cases.

Those who have written of the disease, as given in the public press, from reviews and in voluntary contributions, have described it as a primary condition of influenza, or confined to the disturbance of the mucous membranes of the respiratory tract: while my observations have led me to regard the primary condition as gastric, with marked acidity and biliary constipation, and the severe pain in the head and aching in the back and limbs as reflex symptoms of the gastric disturbance; and the catarrhal symptoms as an after-condition, following the first gastric symptoms in from twelve to thirty-six hours, and in no case did I find these symptoms as primary. The one line of symptoms always present was connected with the peculiar gastric and biliary condition and the reflex results. Many cases showed no catarrhal symptoms whatever. Pneumonia, developing all the stages of that disease, was not present in a single case; but, in a small percentage of the cases, upon the subsidence of the gastric symptoms, there appeared a catarrhal condition of the lungs, with copious moist râles, simulating the second stage of pneumonia or subacute lung disease. Not one death resulted from this cause.

All cases not fully controlled at the onset of the attack, or without treatment, developed congestion of some internal organ or mucous surface. The larger number showed the pulmonary tendency, then bowels, bladder, brain, kidneys, spine. The tendency to erysipelas, found in some localities, was not observed in any case as a sequel to the attack. One case of congestion of liver resulted fatally.

No disease of our time promised such important results from very early treatment as this; and in no class of cases was there so much to be feared from careless or indifferent handling; thus the public mind was impressed with the idea that it was an affection of a trivial character, and the expression, "It's only the grippe," was common. Premature articles in the newspapers, of prominent authorship, led to grave errors with the public and the profession in some parts of the country. Enormous doses of quinine, anti-pyrine, antifebrin, phenacetin, etc., were recommended and used by the suffering patients, on the advice of physicians and on their own responsibility, with equally grave results. Few cases

treated by the large doses of these medicines recovered fully, or without serious congestion of some mucous surface or important organ; while cases treated by what would be termed, by the advocates of heroic medicine, the expectant plan, usually recovered without one untoward symptom; and yet the wholly negative or symptomatic treatment of the homœopathic school showed no better results than the heroic plan. The presence of the specific action of a systemic poison called for a treatment that would neither divert the action of the poison nor leave it unaffected in the system. The plan of treatment I found most effective was, as soon as the disorder could be recognized, to deprive the patient of all foods for twelve to twenty-four hours, and for a longer time of all solids; rest in bed, the use of minute doses of hydrarg. chloride mit. $\frac{1}{10}$ to $\frac{1}{5}$ grain, combined with sodii, ipecacuanhæ, and sometimes podophyllin, all frequently repeated, to correct the gastric and biliary condition. I found the combinations in the tablet triturates, etc., to meet my want (and I carried a supply of the different combinations with me). After twelve to eighteen hours the headache would have passed away, the bowels acted upon, the heat of skin removed and its action restored, the tongue (which was of a dark, dirty color) would be clearing, and the case ready for the exhibition of quinine, which was given in doses varying from $\frac{1}{10}$ to $\frac{1}{4}$ grain (rarely $\frac{1}{2}$ grain), repeated every hour to two hours until the normal condition was restored. The treatment was directed toward restoring disordered functions rather than removing diseased conditions.

My observations were not in support of the contagious character of the disease. I do not recollect a single case where the attack could be so traced. The cause was not a poison carried, as such, either from contact nor by the atmosphere, but a poison generated in the system, from an influence, probably a microörganism, carried by the atmosphere, readily and rapidly transmitted, pervading all locations alike whether elevated or depressed, entering the common articles of diet, especially the meats, establishing a poisonous ferment, the nature of which has not yet been determined fully, but which is so subtle that it remains in effect and is the cause of the sequelæ of chronic inflammation, congestion, or irritability incurred.

This disease, or disorder, which invaded all parts of the world, affected all classes and conditions of mankind alike, though at first referred to in a light, jesting manner, as of trivial importance,

has left, however, in its wake, from causes of neglect or misapprehension, an amount of physical debility, lassitude, enervation, vigor impaired or lost, and consequent invalidism, which far exceeds the havoc of an epidemic of smallpox. Everywhere, and from among all classes, comes the complaint, "I have not been well since I had the grippe."

PROLAPSUS OF THE RECTUM IN CHILDREN.

By HENRY R. WHARTON, M.D.,

DEMONSTRATOR OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, SURGEON TO THE CHILDREN'S HOSPITAL, ASSISTANT SURGEON TO THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

PROLAPSUS of the rectum, in some one of its varieties, is a very common affection in childhood, and the frequency of its occurrence at this time of life may be accounted for both on anatomical and pathological grounds. The looseness of the attachment of the submucous connective tissue to the walls of the rectum is a well-recognized anatomical fact, and probably plays an important part in the production of prolapsus of the rectum. This was clearly demonstrated by the experiment of Mollière, in which inflation of the submucous connective-tissue of the rectum in the dead subject produced protrusion of the mucous membrane through the anus. The straightness of the coccyx in children is said also to favor the the production of prolapsus of the rectum in this class of patients.

The great amount of straining which seems to be necessary to bring about a satisfactory evacuation of feces in infants and young children is also an important factor in the causation of this affection; and this has been explained by Jacobi by the anatomical fact that in children it is not uncommon to find two or three angular flexures in the lower part of the colon.

The habit, so common with mothers and nurses, of placing the child upon the chamber utensil and allowing him to spend a large portion of his time in that position, with a view of keeping him quiet and out of mischief, certainly tends to the production of this affection, and is a custom which cannot be too severely condemned. The violent straining due to the presence of a polypus in the rectum, to seat-worms, to vesical calculus, or to a contracted prepuce, is in many cases a cause of prolapsus of the rectum.

So also may be mentioned improper diet and the very common custom of allowing children to eat at all times during the day, and

as a result of this over-feeding the occurrence of a large number of passages, which directly tend to produce the condition of prolapsus of the rectum.

That improper diet and over-feeding are causes of prolapsus of the rectum is very clearly proved to my mind by the fact that at the Children's Hospital it is not an unusual occurrence, when children admitted to the wards for operation, with the history that they have for some time suffered from prolapsus of the rectum, and in these cases, with rest in bed and with the regulated diet of the house, it often happens that the rectum fails to come down during defecation, and after a few weeks' stay in the hospital a cure is effected without operation. This observation is confirmed by so high an authority as Mr. Holmes.

Prolapsus of the rectum is recognized as presenting three varieties :

First. That in which the mucous membrane alone protrudes from the anus (partial prolapsus).

Second. That in which the entire thickness of the walls of the rectum are included in the prolapsed mass (complete prolapsus).

Third. That in which there exists an invagination as well as a prolapsus of the rectum.

The most marked symptom of this affection is the protrusion of a reddish or purplish mass covered with mucous membrane during straining at defecation or urination ; its presence is usually unaccompanied by pain, and the mass may undergo spontaneous reduction as soon as the straining efforts cease.

If the prolapsus is of the partial variety little inconvenience is experienced unless the prolapsed portion of the bowel is allowed to remain down for some time, when it may become congested or even ulcerated, and this is more apt to occur in cases of complete prolapsus than in the milder form of the affection.

In the third variety of this affection obstruction of the bowel may exist as the result of invagination of the prolapsed bowel ; gangrene of the protruded mass in some cases has occurred, and death has resulted from this complication as well as from peritonitis.

The diagnosis of prolapsus of the rectum is not difficult, and it can only be confounded with hemorrhoids, an extremely rare affection in childhood, or with polypus of the rectum. An examination of the rectum, if the latter affection be suspected, after reduction of

the mass will show the presence of no tumor in the rectum, and the appearance of prolapsus of the rectum is so characteristic that it cannot well be confounded with any other affection—the annular fold of tissue around the whole anus, with the depressed central orifice—that it is not difficult to distinguish it from either of the other affections.

I think that the most serious error in diagnosis is likely to occur in cases of intussusception in children, in which the intussusceptum may protrude from the rectum and may closely resemble in appearance a case of prolapsus of the rectum. That this is possible is proved by the fact that such cases have been operated upon under the impression that they were cases of prolapsus of the rectum, and the mistake has only been discovered upon completion of the operation. The diagnosis of the latter affection from prolapsus of the rectum is not difficult if the surgeon makes a careful digital examination of the protruded mass, and also takes into consideration the previous history of the case, such as sudden pain and collapse and the occurrence of more or less obstruction of the bowels, and the passage of blood and mucus preceding the appearance of the tumor through the rectum, which would direct the surgeon's attention to the possibility of the case being one of intussusception.

The treatment of prolapsus of the rectum consists in returning it as soon as possible, and this can generally be accomplished with ease by laying the patient across the knees and making gentle pressure with the fingers over the whole mass of the tumor for a few minutes, to return the contents of the bowel and the fluids effused into the tunics, the central portion being pushed up first with the finger.

In recent cases little difficulty is experienced, but in long-standing ones in which inflammatory effusion has taken place there may be great trouble in returning the bowel, and in such cases it may be necessary to administer an anæsthetic before the reduction can be satisfactorily accomplished. After the reduction of the mass a compress should be placed on the anus and held in position by a T-bandage, and the patient should be kept in the recumbent posture for a short time.

The preventive treatment of this affection should consist in not allowing the child to have the bowels moved in the sitting posture, and prolonged straining on the chamber utensil should be abso-

lutely interdicted. The child should only be allowed to have the bowels moved when in the recumbent posture on the bed-pan, or while lying on the side, or while in the standing posture, and at the same time the nurse or mother should support the perineum and anus by two fingers placed one on either side of the anus, or she should forcibly draw the skin at the side of the anus to one side while the child is passing the stool.

When the condition of prolapsus of the rectum depends upon the presence of a vesical calculus, or of a contracted prepuce, or of a rectal polypus, or parasites in the rectum, inducing great straining efforts, the removal of the cause will generally promptly effect a cure of this condition. The importance of looking carefully after the child's diet, which, as before mentioned, may be an important factor in producing this affection, should not escape the attention of the medical attendant.

The use of enemata of cold water or of astringent solutions, such as the decoction of oak bark or of a solution of alum, or of suppositories containing extract of nux vomica and ergot, may be employed, and of these I think the use of cold-water enemata will be found the most satisfactory.

I am not aware that the use of submucous or subcutaneous injections of carbolic acid or of ergotine, as recommended by Kelsey¹ or Vidal² for the treatment of this affection in adults, has ever been employed in the treatment of prolapsus of the rectum in childhood, and I, therefore, should not recommend their employment.

In persistent cases of prolapsus of the rectum in children in which the various palliative measures have failed to be followed by relief of the condition, I think the safest and, in my experience, surest method of treatment is that recommended by Allingham, which consists in the application of nitric acid to the mucous membrane of the protruded gut.

This method of treatment is as follows: The child's bowels should be previously opened by the administration of a small dose of castor oil, or by the use of an enema; the patient should then be anæsthetized, and the surface of the prolapsed bowel should be carefully dried and cleansed of mucus by wiping it gently with absorbent cotton.

The whole surface of the mucous membrane of the exposed bowel

¹ Kelsey : Diseases of the Anus and Rectum, p. 115.

² Paris Médical, August 28, 1879.

should next be painted lightly with nitric acid applied with a camel's-hair brush or swab of cotton, care being taken not to allow it to come in contact with the skin adjacent to the verge of the anus. A pledget of oiled cotton or lint should next be introduced into the central depression of the prolapsed mass, and by pressing it upward with the finger the mass should be reduced; a compress is then to be placed over the anus and may be held in position by bringing the buttocks together by broad straps of adhesive plaster. The bowels should be kept quiet for two or three days by the administration of small doses of opium, and at the end of this time they should be opened by a laxative and the pledget of cotton or lint will come away with the passage.

In practice I have found that the introduction of the oiled lint with the prolapsed bowel is not necessary, as the child is apt to pass it by straining when he comes up from his anæsthetic, so that I generally omit its use, and satisfy myself by coating the cauterized surface of the bowel with olive oil before reducing it, and I have found that its omission in no way affects the result of the operation unfavorably.

The prolapsus may recur with the first passage, but a permanent cure is generally effected by one application of the nitric acid, used as above described; but should this not be the case the cauterization can be repeated in a few weeks, and I have never yet, in prolapsus of the rectum in childhood, failed to see a second or third application bring about a cure.

The employment of the actual cautery, the ligature, or the clamp and cautery, have been recommended by some surgeons, but their use is attended with danger in cases of complete prolapsus of the rectum in which the peritoneum is included in the mass, and, although they have all been employed with success in the treatment of this affection in adults, I have never seen a case in children in which their employment seemed to me to be justified, and in which the simpler and safer procedure, namely, cauterization with nitric acid, failed to give a satisfactory result.

In long-standing cases of prolapsus of the rectum, in which invagination of the rectum has occurred, and there is obstruction of the bowels, if the prolapsus cannot be reduced under ether, the only operation which holds out any prospect of success is the establishment of an artificial anus by a laparo-colotomy, which should preferably be made in the left groin.

THE PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF SULPHUR.

BY JOHN V. SHOEMAKER, A.M., M.D.,
OF PHILADELPHIA.

THE mutation of medical practice as regards the employment of certain remedies is a fact no less curious on account of its familiarity. It might naturally be supposed that if a drug had been proved to possess valuable properties it would never be suffered to fall into disuse. Such neglect, however, we do constantly observe. New agents continue to be brought forward, more numerous of late years than ever before, and, while it is true that some of these are valuable additions to the resources of the therapist, it is equally true that many are found to be destitute of peculiar power. Nevertheless, amid this crowd of claimants for favor, old and tried remedies sometimes fall into unmerited neglect. It is incumbent upon us, therefore, critically to survey from time to time the entire list of active medicaments. We should seek to establish a consensus of professional opinion as regards the worth of drugs. As practitioners, whose duty is above all to relieve suffering and repair the ravages of disease by all means within our power, it behooves us to examine our weapons, the drugs and the physiological remedies at our disposal, just as carefully as the quality, the sharpness of edge, and antiseptic condition of our instruments and appliances prior to an operation in surgery. The more thoroughly physicians are acquainted with the manifold properties of the drugs they employ, the more successful are they in combating disease.

Among active medicinal agents few have been more completely neglected than sulphur. Few have less deserved neglect. In the hands of a preceding generation it was frequently and beneficially employed. The object of the present paper is to demonstrate that sulphur has a well-defined field of usefulness, within the limits of which it can be surpassed by no other means.

It should seem that an element so widely distributed throughout the kingdoms of nature, an element which is a necessary component of the physical basis of all life, must play an important part in the processes of nutrition. Sulphur is a constant constituent of albumin. It is present in from 1 to 1.6 per cent. in different varieties of albumin. Animal hair contains about 4 per cent. The proportion of albumin found in lymph is, according to Gorup-Besanez, 24.6 in 1000 parts; in chyle, 40.9; in blood, 195.6; in brain, 86.3; in liver, 117.4; in muscle, 161.8. A sulphur combination, sulpho-cyanide of potassium, exists in the saliva, while taurin, a normal component of the bile, contains a large proportion of sulphur.

From these facts of chemical composition we are led to suspect that sulphur may have a place as a remedy in the same category as iron and phosphorus; that is, as an element conducive to the health of albuminous organs and tissues. If sanguification be improperly performed, if the work of secretion be impaired, if elimination be checked, sulphur is one of the remedies which may be relied upon as a corrigent.

Sulphur is insoluble in water; slightly soluble in alcohol, ether, and fatty oils. It is likewise soluble in the oil of turpentine and in alkaline fluids. It is next to oxygen in its affinity for other elements. It unites with most of them and often in several proportions. When heated in the air it readily absorbs oxygen and is transformed into sulphurous acid gas. This latter compound, again, is gradually converted into sulphuric acid by exposure to air in the presence of water. The sulphites, in their turn, abstract oxygen from the air and are converted into sulphates. Sulphuric acid exhibits a no less marked affinity for water, by virtue of which it exercises an escharotic effect upon organic tissues. These powerful chemical attractions, by which sulphur is continually carried to higher combinations with oxygen, are closely concerned with the absorption, therapeutic action, and elimination of the element discussed.

The action of sulphur when directly applied to a surface is somewhat irritant. Yet it is marked by a more specific property in that it is an energetic germicide. From these two qualities it is capable of use in a variety of accidents or diseases of the skin. Wherever gentle stimulation is required, whether the affection be of a parasitic nature or not, sulphur may be properly and bene-

ficially employed. Upon venereal sores, indolent ulcers, unhealthy or sloughing wounds it acts as a stimulant and antiseptic. Its principal external use, however, is the destruction of the itch-mite together with its ova.

But it is not the external application of sulphur to which I am to-day desirous of calling your attention. I seek to present it in the light of a constitutional remedy having a well-marked effect upon nutrition.

Being insoluble in the acid contents of the stomach sulphur presumably exerts little or no influence upon the function of that organ. Dissolved in the alkaline juices of the small intestine a portion is absorbed under its own form into the portal circulation. Another portion enters the blood under the form of soluble sulphides. It has been conjectured that some is also absorbed after being dissolved in the fatty materials present in this part of the alimentary tract. If given in doses of half a drachm and upward it is probable that a large proportion passes unabsorbed into the large intestine and there combines to form sulphuretted hydrogen gas, which is passed in considerable quantity by those who have taken full doses of sulphur. In some cases this gas appears to enter the blood and produces prostration and anæmia. The secretion of the intestinal glandulæ is increased and the elaboration of healthy bile promoted by the comparatively small amount which is absorbed. At the same time that portion which passes along the small intestine without undergoing change acts as a stimulant to the muscular coat of the bowel. Thus the food-detritus is softened and urged forward, and the substance acts, as everyone knows, as a gentle laxative. The depurative effect of the intestinal secretion, the antiseptic property of the bile, the depletory effect upon the mesenteric radicles, must be of valuable service to the economy in certain conditions. Yet, as an illustration of the slight place which sulphur holds in the therapy of this country at the present time, I may remark that in Vol. II. of the *System of Practical Medicine by American Authors*, edited by Dr. William Pepper, treating of general diseases and diseases of the digestive system, two scant references to its laxative effects are all the notice which sulphur obtains.

After absorption this substance exercises a tonic, corrective, or alterative effect upon many secretions. It is rational to believe that as it is conveyed to the liver, and as one of the peculiar con-

stituents of the bile, taurocholic acid, normally contains sulphur, it must favor the bile-producing function of the organ. Taurocholic acid is a compound of taurin and cholic acid, and twenty-five per cent. of the former body has been found to consist of sulphur. That the administration of sulphur is capable of producing a beneficial effect upon the biliary function of the liver is seen in cases of inactivity of that organ to which I shall hereafter more particularly allude. From a similar course of reasoning I believe that the activity of the absorbent system is stimulated by the exhibition of small quantities of sulphur.

The secretory functions of the skin and mucous membranes are modified or improved under the use of sulphur. The epithelial appendages contain normally a notable proportion of this element. In perverted nutrition of these structures I have often witnessed decided improvement from the administration of minute doses of the same substance, which, in such cases, may be looked upon as a specific nutrient remedy. It produces a beneficial effect upon the bronchial mucous membrane. It probably has a similar influence upon the mucous membrane of the genito-urinary tract.

A remedy which is connected with the action of the largest and most important gland of the body, which is closely related to the processes of secretion and excretion, and probably to the function of the absorbent system as well, must have an important, if obscure, influence upon the quality of the circulating blood. It must, consequently, minister to the nutrition of the muscular and nervous systems. It has been stated that sulphur increases the power and frequency of the heart's contraction. While I can speak with no actual knowledge upon this point, and while I should not anticipate a direct or speedy action upon the heart, nevertheless I believe that its remote constitutional effects are to increase the heart's vigor. It favors, I think, the contractility of muscular tissue wherever situated. A considerable proportion of sulphur is normally present in muscle, and must, consequently, be continually supplied to the tissue. Hence, in certain conditions, the administration of sulphur improves the muscular health and tone. This being the case, it seems highly probable that cardiac contractility is promoted in the same way. The muscular coats of bloodvessels, of the intestinal tube and hollow muscular viscera, as the heart, bladder, and womb, should partake of the same benefits. With

the improvement of circulation the respiration should also be strengthened, deepened, and quickened.

Now, these constitutional results do not follow the use of sulphur as ordinarily administered. Of a full dose, a comparatively small proportion reaches the blood directly, but the larger portion descends the tube, and is, in the large gut, a source of sulphuretted hydrogen. This is a toxic gas, and although it usually escapes *per anum*, yet a small quantity may always be absorbed, since the prolonged administration of full doses of sulphur or a sulphide lead to emaciation and debility referable to the continued action of sulphuretted hydrogen, which impairs the red blood-corpuscles and depresses the motor ganglia of the heart.

The numerous chemical affinities of sulphur, its ready combination with the alkaline bases, which it encounters in the small intestine, the ascending scale of its combinations with oxygen, blend the physiological and therapeutical actions of the elements and its compounds into an intricate study. The interesting questions arise, How does sulphur eventually do its work? and Is it possible sharply to distinguish between the medicinal effects of sulphur, a sulphide, sulphurous acid, a sulphite, sulphuric acid, and a sulphate? The chemistry of the blood is, indeed, a dark subject. All that I can say is that sulphur is readily converted into a sulphide, the sulphides and the sulphites into sulphates, and that most if not all the sulphur eliminated by the kidneys is combined in the form of sulphates. Whether administered free or combined, it is probably always as a sulphate that it circulates with the blood, and the tissues of which it is normally a component are capable of separating and appropriating the element as needed.

Sulphur is eliminated by means of the secretions of those glands which it stimulates, the liver, skin, and intestinal glands. It has also been found in the milk and in the respired air. It is chiefly, however, excreted by the kidneys as sulphuric acid in combination with alkaline bases, potassium, sodium, or magnesium. From the skin and the lungs it escapes as sulphuretted hydrogen.

I have been in the habit, for a number of years past, of administering sulphur in quite small doses as a constitutional remedy, not only in diseases of the skin but also in various affections of the alimentary tract, mucous membranes, muscular and articular structures, and in certain infectious disorders. It was consequently with great pleasure that I read the testimony, to the same effect, of

the distinguished practitioner and writer, Sir Alfred B. Garrod, published in the *Lancet* of April 6, 1889.

The most obvious indication for sulphur is as a laxative in affections of the lower bowel. Accordingly, we find that it has long enjoyed good repute in hæmorrhoids when operative interference is forbidden. It likewise proves useful even in cases of bleeding from piles. It arrests bleeding here by unloading the engorged hæmorrhoidal vessels, removing obstruction to the circulation, and allowing the propulsive forces an opportunity to act. In stricture of the rectum the softened feces produced by sulphur pass through the narrowed portion of the tube with less difficulty than more compact masses, while if the stricture be due to cancer, sulphur stools are less likely to occasion pain than those due to more active purgatives. For the same reason sulphur may be beneficially administered in fissure of the anus or anal fistule. It forms an appropriate laxative, also, as Prof. Bartholow has pointed out, after operations upon the pelvic viscera. It may not be generally appreciated, however, and yet it is not surprising, on reflection, that a very much smaller dose than that laid down in the books and generally employed is efficient, since comparatively so small a portion is absorbed. For the laxative power of sulphur is far more due to its action upon the glands and the muscular layer of the intestine than to the local effect of the unabsorbed portion. This, at least, is the conclusion to which one is led who sees regularity of alvine evacuation established by so small a dose as five or ten grains daily. It is to such small quantities continued for a considerable period, that we are indebted for the systemic action of sulphur. If bulky doses be administered, much of it is lost, much of it combines with hydrogen, either in the bowel or the blood, to form a toxic gas, while the albuminous tissues cannot be forced to appropriate more sulphur pabulum than their needs require.

Sulphur will often prove remedial in a form of chronic sore-throat associated with, and perhaps springing from, imperfect digestion. The patients are generally those who lead sedentary lives and habitually overtask their powers in monotonous labor unrelieved by cheerful recreation. The digestive and nervous systems suffer, and various ills result either from nervous sympathy or a mild grade of toxæmia. In such cases a change of habits, open-air exercise, mental relaxation, and small doses of sulphur as an alterative, suffice to effect a cure.

The more closely the functions of the liver are studied the fuller must become our appreciation of its immense influence upon nutrition. It is true that in the processes of primary digestion the bile seems to perform a less-important and peculiar part than the gastric or pancreatic secretion. But in what may be termed the secondary digestion of albuminous material a further and no-less-necessary elaboration takes place, by which unnecessary or deleterious nitrogenized bodies are separated in forms fit for excretion and the crude peptones are transformed into the normal nutrient albumins of the blood. We are ignorant, indeed, of the precise manner in which these changes are effected. It appears probable, however, that bile, absorbed from the small intestine and carried in the portal blood back to its place of origin, is intimately connected with the metabolism of albuminous substances. Now, in order that this work may be properly carried on, it is necessary that the hepatic circulation be active, and that the bile be secreted in normal abundance and quality. If this be not the case, we are all aware of the ills that result. Digestive difficulties are perpetuated and intensified, imperfect preparation and separation of histogenetic and excrementitious products throw into the blood noxious materials which impair intellection, embarrass the kidneys, disturb the bowels, and eventually excite structural disease of the heart, blood-vessels, or kidneys, hepatic or renal calculus, gout, and, very possibly, diabetes or carcinoma. In the sluggish and overworked condition of the liver, which serves as the starting-point of this long train of evil consequences, the habits of life must be radically altered. This is the first necessary step in the right direction. Such hepatic torpor I have often found to be benefited by the prolonged administration of small doses of sulphur. The cases which I have sketched are often hereditary, and the functional weakness would seem to point to a congenital insufficiency of the gland, as Dr. Budd, many years ago, suggested. Sir Alfred Garrod has seen wonderful relief result in a case of hepatic colic of many years' duration from the use of a five-grain sulphur lozenge, persisted in for months. This is, indeed, removing the effect by striking at the cause.

If, as is often the case, hepatic indigestion be accompanied by constipation, a mercurial purge may fitly inaugurate the course of treatment on account of the promptness of its impression, but the systematic use of small doses of sulphur is less hazardous and more

beneficial. Let me, then, ask my hearers, when confronted with chronic ailments due, in their inception, to derangement of the liver—and we all know how extremely common these cases are—to think of sulphur given in small and what I may call tonic doses.

Sulphur is a gentle stimulant to mucous membranes. It is an excellent remedy in chronic catarrhal conditions. As the bronchial mucous membrane is the most frequently and constantly exposed to this process, it is particularly in chronic bronchitis and bronchorrhœa that the remedy under discussion is found most serviceable. Excessive secretion is checked, the sputum becomes more liquid and more easily ejected, and the cough, consequently, less frequent and less troublesome. The eminent Irish physician, Dr. Graves, in his *Clinical Lectures*, which are a model of style, and may, even after the lapse of so many years, be consulted with advantage, dwells upon the use of sulphur in chronic bronchitis. He tells us that his attention had been drawn to the value of this remedy in long-continued congestion of the bronchial mucous membrane, by observing the happy effect attending the use of sulphurous waters, as those of Harrogate. He recommends it especially in the disease as it occurs in aged and debilitated persons with copious secretion into the bronchial tubes. It would probably be found useful in obstinate affections of other mucous membranes. Garrod suggests that it may be of service in cystitis and perhaps in some disorders of the kidney. I think that it might very properly be tried in tubercular or gouty pyelitis, and likewise in disordered menstruation, when not obviously dependent upon serious organic disease of the womb or its adnexa.

As a normal constituent of muscular tissue, sulphur claims attention as a remedial agent in disturbed nutritive conditions of that system. Such disturbance is usually due to the toxic influence of either gout or rheumatism. Not infrequently the outbreak of a gouty paroxysm is preceded by painful muscular cramps. Rheumatism often attacks the muscular system, and lumbago, torticollis, or other myalgia refer the inquiring physician to a specific toxæmia. These muscular aches are often notably relieved by the persistent use of sulphur. Its applicability to the subacute or chronic muscular involvements leads one to think of making trial of sulphur when the same poison affects articular structures. In chronic articular rheumatism or gout the same method of treatment has been found beneficial. In rheumatoid arthritis, likewise, improve-

ment results from the use of sulphur. Garrod tells us that it was in this disease that he first employed small and continued doses of sulphur. He adds that he is doubtful as to what precise share sulphur may have in the benefit secured, since he has been in the habit of concurrently administering other remedies, such as iodine or arsenic. Reasoning by analogy, however, I have no doubt that sulphur is of decided therapeutic importance in cases of this nature.

This remedy is of value in acute infectious disorders. In diphtheria and the sore-throat of scarlatina the direct action of flowers of sulphur, which may be conveniently applied by blowing it through a paper cone, is decidedly antiseptic. It limits the spread of the membrane of diphtheria, destroys the microorganisms upon which the growth of the membrane depends, and disinfects the organic product whose decay and absorption intensifies the blood-poisoning. A similar beneficial action is exerted in scarlatina. In scarlatina, erysipelas, measles, and smallpox, an ointment containing sulphur moderates the heat of the skin, allays the congestion or inflammation, and disinfects the pus of variola. In place of sulphur itself sulphurous acid may be applied to the throat by atomization in diphtheria, scarlatina, tubercular or syphilitic ulcers of the pharynx or larynx, and bronchorrhœa. Sulphurous acid and the sulphites have been employed internally in most of the infectious fevers and in puerperal septicæmia. We are obliged to confess the same disappointment with regard to sulphurous acid as to other germicides. They are not as effective within the human body as in the pathological laboratory. Nevertheless, certain of them do ameliorate, modify, and shorten the disease which they are not able to abort. In fact, profound alteration of the blood, disturbance of the nervous system, the circulation, secretion and excretion, once inaugurated by a specific cause, cannot always rapidly subside, even upon destruction of that specific and material cause.

Syphilis is another great general disorder which is, to a certain extent, influenced favorably by sulphur. We all know that in the management of syphilis much depends upon the functional activity of the skin. Hence, baths and drugs which cause a slight determination to the integument, which heighten the respiratory and sudorific functions of that tissue, are important adjuvants to the more energetic antidotal treatment. Nothing is more unwise than a routine administration of mercury and iodide of potassium. There are times when such a course should be temporarily aban-

done and the patient placed upon simple tonics. Again, it is always advantageous occasionally to suspend specific medication for a few days. During this period it is well to act gently upon the emunctories, and baths containing sulphide of potassium are very serviceable for their effect upon the skin. A resort to one of the sulphur springs may also be recommended, especially in cases of late syphilis and in debilitated subjects. Sulphur baths and mineral waters have long been esteemed as curative in mercurial and saturnine intoxication. While they exert no attractive influence upon the metallic poison, they probably augment the effect due simply to temperature.

Sulphur has been used in tuberculosis. It often seems to have a good effect upon local tubercular lesions, though I have never been able to assure myself that it had any influence upon the generalized disease. Both sulphurous acid and hydrosulphuric acid have been used. Sulphurous acid and its combinations are extremely valuable in yeasty vomiting.

Sulphur is a valuable remedy in many diseases of the skin. As it stimulates the depuration of the blood, the capillary circulation, nutrition and functions of the skin, as it enters into the chemical composition of the skin, the hair, and the nails, it is not surprising that sulphur should be found of great service in many chronic cutaneous affections.

When seborrhœa is not obviously produced by frequently operative local causes, such as exposure to heat and cold, I have usually been able to detect some deterioration of the general health in its subjects. Digestive ailments, exhaustion of the nervous strength by anxiety, overwork, or excess; constitutional states, as scrofulosis, tuberculosis, carcinoma, anæmia, chlorosis, chronic malaria, and other depressing influences may be accountable for its occurrence. Except when it is associated with advanced phthisis, I have often witnessed marked improvement under the use of sulphur, especially in the dry variety of the affection. Nearly the same remarks may be made about acne, with the addition that it is peculiarly apt to develop in connection with the changes which take place at puberty. Manifestly, in maladies of which this may be said no single plan of treatment is applicable to all cases. On the other hand, their common occurrence and their obstinacy compel us to the mastery of all our resources. Sycosis betokens impaired nutrition, whether due to deficient alimentation or waste of energy

from habits or disease. Premature baldness and alopecia circumscripta are the result of impoverishment. The bulbs are shrunken. the shafts split and ragged. The condition may have been brought about by either local or general causes. In all these cases the internal administration of sulphur in small doses and for considerable periods has yielded admirable results, combined with appropriate topical treatment. Chronic eczema is an inveterate complaint, and we are often obliged to run the whole scale of remedies before we find the effective one. Not infrequently this effective remedy will be sulphur. Again, boils, carbuncles, eczema, and urticaria are among the manifestations of liver-indigestion; general paræsthesia and the itching which often is attendant upon eczema may also be produced by the same cause. Here, then, we meet with a double indication for sulphur, which acts at once upon the liver and the skin. And here, although something of a digression, I may call your attention to the virtue of sulphide of calcium in furunculosis. Given early, it will often prevent the formation of pus and cause resolution. But, if suppuration be inevitable, the sulphide of calcium will at least limit its extent, favor its early evacuation, and closure of the cavity. In eczema, also, both of the acute and chronic forms, I have found this sulphur combination beneficial. Malnutrition of the nails, expressed by hypertrophy, atrophy, or eczema, is sometimes amenable to sulphur in union with appropriate local measures.

Sulphur proves of avail in some of the most intractable maladies of the integument. In psoriasis it is of the utmost importance to secure functional activity of the skin, bowels, and kidneys. This is effected by sulphur, and I have found it of use in psoriasis given internally and also applied externally. Experience forbids us to expect much improvement in ichthyosis, scleroderma, and lepra, yet some amelioration, or at least arrest of the disease, seems, in certain instances, to follow the administration of sulphur. The substance called ichthyol, which has recently been introduced into dermatological practice, and has been found efficacious in these same chronic affections, owes its activity, for the most part, to the large proportion of sulphur which it contains. Ichthyol is also, like sulphur, a most valuable topical medicament.

It has been my intention rather to invite your attention to the prolonged internal use of sulphur in small doses than to its local employment. Its use in scabies is time-honored. It is excellent

also in pediculosis, tinea versicolor, tinea circinata, chronic eczema, and psoriasis. Sulphurous acid is an admirable germicide, one of the best which we possess. It is used with the most striking success upon neglected and foul ulcers, and upon unhealthy wounds. It may be advantageously applied in tinea favosa. Dr. Schuester, of Aix-la-Chapelle, has devised an ingenious manner of applying it to the scalp. A net of strings is stretched across the lower third of a cardboard box, which fits to the head and can be closed by a lid of the same material. A saucer containing burning sulphur is laid upon the net of strings, and the box covered. The patient must sit still for half an hour. An abundance of sulphurous acid gas is generated, the sulphur ceasing to burn, of course, as soon as all the oxygen is exhausted.

Some doubts have been thrown upon the value of sulphurous acid as a disinfectant by the experiments of Koch and Sternberg. These, however, related to the power of the gas in disinfecting apartments and large masses of material, such as contaminated rags in bales. The gas was rapidly lost by diffusion, and was found to have slight influence upon dry spores. Nevertheless, it deserves to be ranked high as an antiseptic to moist cultures or under the conditions in which microorganisms develop in human tissues.

My remarks have applied, for the most part, to uncombined sulphur. The ready combination of the element, and the ready conversion of sulphites into sulphides, establish a close community of therapeutic action between sulphur, sulphides, sulphurous acid, and the sulphites. Sulphuric acid and the sulphates exhibit diverse properties.

I have been accustomed to administer washed or precipitated sulphur in milk or in capsules. Garrod gives it in the form of a lozenge containing five grains of the milk of sulphur and one grain of cream of tartar.

REPORTS FROM COUNTY SOCIETIES.

ALLEGHENY COUNTY.

THE Allegheny County Medical Society, through its Committee, reports a year, or rather two years, of prosperous work.

The Society holds twelve meetings during the year—four regular and eight special meetings. The regular meetings are held on the third Tuesdays of January, April, July, and October, at 2.30 P. M., for the transaction of the official business of the Society. The special meetings are held on the third Tuesdays of February, March, May, June, August, September, November, and December at 8 P. M., for the reading of papers, reports of cases, and the demonstration of specimens and apparatus.

With the completion of the new building of the Pittsburg Free Dispensary the Society has found permanent quarters in its comfortable lecture-room.

The attendance at our meetings and the interest in the work have been good. This interest has received a decided stimulus by the employment of a stenographer and the publication of the proceedings in the *Pittsburg Medical Review*. Naturally, this has led to a much more careful preparation of papers presented to the Society, and has been the means of preserving the thousand-and-one observations made in discussion by practitioners too busy to submit them in monograph. Galley-proofs of the proceedings are sent by the editors of the *Review* to such other medical journals of the country as desire to publish them in full or in part. Eight journals are now making this use of our proceedings.

The Society has a membership of one hundred and eighty-six. Of this number, forty-five have been admitted to membership during the last two years. Four members have died during the same time: Dr. T. J. Gallaher, Pittsburg; Dr. W. N. Brinton, Sharpsburg; Dr. J. A. Oldshue, Pittsburg, and Dr. David Power, McKeesport. A membership list, as required by resolution of the

State Society, has been carefully made by Dr. A. S. Daggette, of our committee, and is here included.

The annual meeting of the State Society set for last year was postponed, as is known, on account of the disaster which befell Johnstown and the Conemaugh Valley. Though the devastation was local, the calamity was not limited by the confines of Western Pennsylvania; and, though substantial relief came from every quarter of the globe and from every walk in life, the rôle filled by the medical profession and the work performed by our physicians make an excusable offset to the annual meeting which the calamity displaced. Save in times of war a community is seldom called upon to pass through such harrowing and fatal devastation. The anguish and suffering of those first days and nights defy description. There were situations so agonizing and terrible that courageous men and women, unable to withstand the awful shock, became hopeless maniacs. Men inured to the carnage of the battle-field heard here the wild cries of mothers, wives, and children above the roar and crash of that Juggernaut of water. Without a moment's warning whole families were blotted from the earth. Homes and the frugal savings of years were in an instant swept away in general ruin. The loss of life was frightful. Dr. David J. Beale wrote me: "You ask for the number of lives lost in our great calamity of May 31, 1889, as determined by the latest and most reliable reports. The total loss cannot be fixed definitely for the following reasons:

"1. We did not know at the time of the catastrophe precisely how many people lived in all the Conemaugh Valley, and it is impossible to ascertain the number now.

"2. Whole families of foreigners were swept away who left no acquaintances behind to state the number of the drowned.

"3. The large number of persons burned at the stone bridge is an unknown quantity.

"4. The fact that without search bodies have been found at many points along the rivers as far down as Cincinnati is presumptive that many others may be discovered if careful search were instituted.

"5. There are, every little while, human forms unearthed at 'The Point' (as we name the lower part of old Johnstown proper), and in cellars throughout the city. 'The Point' referred to is a great graveyard to-day. Foreign material has been dumped over

this large space, covering very many bodies. I reply then, that, according to the latest and most trustworthy information, there have been UPWARD OF TWENTY-ONE HUNDRED BODIES RECOVERED, and that MORE THAN A THOUSAND OTHER BODIES lie 'no mound or stone tells whither.' In a word, I am persuaded that more than three thousand persons perished in the great Johnstown flood."

To such a mass of suffering humanity Allegheny County and its physicians, from their geographical positions and railroad connections, were called upon earliest and most persistently to minister. Of how promptly this duty was assumed it is sufficient to say that the first four directors of the Bedford Street Hospital were members of the Allegheny County Medical Society. How devotedly this work was done is best told by another, Dr. David J. Beale in his book: "Through the Johnstown Flood, by a Survivor." Dr. Oldshue worked incessantly. Under his intelligent direction the hospital soon assumed that peaceful quiet which with his watchful and tender care did so much to soothe the dying and to inspirit those who were recovering. Although suffering from a fatal disease himself, Dr. Oldshue neither ate nor slept until all intrusted to his vigilant care were properly tended and made comfortable."

At a special meeting of the Allegheny County Medical Society called June 10, 1889, fifteen hundred dollars were appropriated for the immediate aid of such members of the Cambria County Medical Society as might need assistance. A committee was appointed to visit Johnstown and to distribute this money.

The general health of this district has been good. The almost constant rains have not permitted the accumulation of filth.

Locating the cause of some typhoid cases possesses some interest. The people along the rivers leading from Johnstown, whether wisely or not, became greatly exercised over the use of water taken from the Allegheny River, and resorted to the use of spring water, reopening springs out of use for several years. This led to outbreaks of typhoid fever in several suburban districts. We make no effort to collect this data, but state that of those using the water of one such spring there were thirty cases and two deaths; and we add a peculiar fact, showing the unmistakably poisonous condition of this spring. After two patients had recovered from the fever by a strange accident they obtained the same water at a lower level and were again attacked with fever.

G. W. ALLYN, *Chairman.*

CUMBERLAND COUNTY.

OUR society meets regularly four times a year—usually at Carlisle, the county seat, which is central and easy of access, as also the home of a greater number of physicians than at any other point in the county.

The attendance has been fairly good throughout the year, though it might be improved, and I am convinced that those who absent themselves without good cause lose much that might be of benefit both to themselves and to their patients.

Our meetings were characterized by the reading and discussion of various interesting and suggestive papers on medical topics, and by reports of a number of cases, the discussion of which proved exceedingly valuable. An additional feature has been the conducting of a clinic on a small scale by our worthy president, Dr. Given, the physician to the Indian Training School near Carlisle. His method was to bring in to the Society such patients as might be suffering from the more prevalent diseases of the school, and illustrating any special treatment or peculiarities in the case. It will be remembered that these Indian children are gathered from all points of the West and subjected to the confinement and discipline of a more restricted civilized life, involving a total change of diet, dress, and climate.

Dr. Given's efforts in this direction were highly appreciated by the Society and gave a precedent for further examples in the same line. It is to be hoped that this auspicious beginning will be continued, to the increase of the general attendance and enthusiasm of the members.

We have not had epidemics in any portion of the county, but there has been rather more than the average amount of sickness and an unusual number of deaths. Many aged persons succumbed to that foe of old age—pneumonia—owing, it was thought, to the changeable weather that characterized the past winter.

Typhoid fever has prevailed in some portions of the town and a number of isolated cases of diphtheria occurred, also somewhat

related to the localities where the typhoid fever prevailed. Of the latter there were about forty cases, and upon inquiry I find that they were all confined to families who used what is called well-water. The conviction is forced upon us that the cause for this dire disease lies in the condition of the water in use at these points; and a great responsibility rests upon the Board of Health, as well as upon the physicians of the town, to take prompt measures to avert future suffering of this kind. Our Board of Health direct that all cesspools shall be of a depth of not less than eight or more than twenty feet—that old wells should not be used as cesspools. I have on various occasions called attention to the fallacy of such an order, as it fails to strike the proper remedy for the evil. One needs but to consider the topography of our valley, the peculiarities of a limestone formation, to see that whether you dig a cesspool eight or twenty feet deep you are about equally liable to strike a crevice communicating with a water-course that may feed a neighboring well.

The fact is, our system of drainage is sadly defective; and this, with kindred subjects affecting the health and well-being of the community, will afford wide scope for the future deliberations of societies like ours. Respectfully submitted,

W. H. LANGSDORF, *Chairman.*

IN MEMORIAM.

Since the last meeting of the State Society, our County Society lost one of its oldest and most honored members, by the death of Dr. E. B. Brandt, who was also an active member of the State Society; and since our last meeting we have lost one of our very recent and yet ablest members as well as our President, namely, Dr. O. G. Given, of the Government Indian School, who died a few weeks ago. Subsequent notice of these deaths will duly appear.

Respectfully, WINFIELD ZEIGLER, *Secretary.*

MONTOUR COUNTY.

IN MEMORIAM: DR. ISAAC PURSELL.

THE subject of this short sketch was one of the leading physicians and surgeons of Danville, Pa. He was born in Williams Township, Northampton County. He read medicine with Dr. William Wilson, at Bethlehem, and began the practice of medicine in May, 1846, in Rushtown, where he remained five years, when he went to Berrysburg, and practised there six years. He then removed to Shamokin, where he lived four years, coming to Danville in 1860, where he remained in active practice, except while he was in the army in 1862 and 1863, until his death, March 27, 1888.

Dr. Pursell was a man of fine physique, robust, and commanding in appearance, with a genial smile and pleasant word for everyone. He was a consistent Christian and a constant attendant at church. Strong in his convictions of what he thought was right, he would listen to no compromise with what he considered wrong. He was a strong supporter of the temperance cause and when there was but one prohibition vote polled in the town that vote was his.

He was a modest and retiring man, never boasting and seldom talking of his exploits in his profession, though he was one of the coolest, neatest, and most rapid operators; and many of his living patients can testify to his being one of the most successful of surgeons. Notably a gentleman in the town, who had both legs run over by the cars, requiring a double amputation, and a lady whose breast he removed with a tumor that measured three feet around it, and weighed after removal eleven and three-quarters pounds.

He seemed to shrink from notoriety, and had no time to spend in spreading his fame; yet took an active interest in the affairs of the community in which he lived and identified himself with the interests of the people. He was an active and attentive member of the Montour County Medical Society, also a member of the Medical Society of the State of Pennsylvania, likewise of the American Medical Association, and for many years a member of the Board of Health. He practised up to the time of his death, although somewhat enfeebled by a stroke of paralysis which had come on him while at a meeting of the Medical Society, about four years before. Another attack recurred after he had retired and he lived but a few hours, without regaining consciousness. So, as the good man, he died in peace, and as the weary worker, he rests from his labors; and it may be said of him as of the great Master and Physician, "Others he saved: himself he could not save."

A series of resolutions were passed by the Montour County Medical Society in regard to his death.

R. S. SIMINGTON, M.D.

NORTHAMPTON COUNTY.

JOSEPH H. MIXSELL, 1846-1888.

THE subject of this sketch, Dr. Joseph H. Mixsell, was born in Easton, Pa., in 1846. He was an only child. He attended the public schools in Easton until he entered the store of H. G. Tombler, with whom he remained two years. He next took a clerkship in the drug store of Charles Pomp, at the corner of Fourth and Northampton Streets. It was here he acquired his taste for botanical studies, and devoted all his spare time to the pursuit of them. His enthusiasm attracted the attention of Dr. Porter, the eminent botanist, and as his friend and pupil, the young drug-clerk became one of the most proficient botanists in this region. His favorite flower was the rare and beautiful fringed gentian, and he knew localities where specimens could be obtained—cherished secrets of the ardent student; year after year it was his delight to send specimens of the flower to his friends. In the exercise of such courtesies, and in his daily walk and conversation, there was apparent the refining, elevating influence of the studies he pursued. It developed in him a refinement of nature which prompted a polite, affable, and courteous manner, which drew to him the friendship of those who love that which is lovable, and honor that which is honorable, and a friend, once made, the pleasant, kindly gentleman never lost.

It was about the year 1865 that he began the study of medicine with the late Dr. C. C. Field, who at that time had a very large class of students, and among them the young botanist was the favorite of his preceptor. The careful, studious habits which he had formed as a youth, gained him the respect and confidence of the skilled surgeon, and he was selected as assistant in many of those difficult operations which gave Dr. Field more than a local reputation. In 1867 he was graduated at the University of Pennsylvania with honor, and at once began the practice of medicine in Easton, and was thus able to carry out a plan which he had formed many years previously. It was while he was serving as a drug-clerk that he conceived the idea of raising the standard of attainment for those who occupied similar positions, and to make something more of the young men than in the business than mere handlers of paints and oils. He instituted a course of lectures for the drug-clerks of Easton, and more than one of our graduates in pharmacy in this region owe their success to that fact. But he was not able long to continue in the congenial work of helping men to elevate themselves in their chosen work. He was the very *beau ideal* of a physician, gentle and patient, careful and conscientious, and an untiring student; he gave his patients all he had of skill and knowledge, and carried the burden of their troubles with him night and day. There are very many who sorrow that he has gone, and remember gratefully the tender, faithful services of

the good physician. There are not a few who, with tears of grateful remembrance, say, "I owe my life to him." But his conscientious devotion to the large practice he soon acquired was more than he was physically able to bear. His sympathy with his patients made every case of suffering a great trial to him, and he was under a continual mental strain until in a few years he broke down, and was compelled to seek rest and recreation in a trip to Europe. He accompanied Dr. T. M. Drown and Prof. King, and in congenial society gained knowledge and a fair degree of health. He never again resumed the active duties of his profession, but he still pursued the study of the science connected with the art of healing with the ardor of a young student. He was emphatically a well-informed man. His reading was extensive and his knowledge of general literature very thorough. The story of his life is a simple one. There is no record of great deeds done before applauding crowds. It is only the record of the life of a gentleman who quietly did his duty in that state of life to which he had been called. He was not rich in this world's goods—such men seldom are—but he was rich in the possession of a loving, earnest, truthful nature, a loyal kind heart, and a soul which had been attuned to chord with the harmonies of nature. To the latest hour of his useful life he was untiringly energetic in the pursuit of knowledge, and he passed from this world in the simple, childlike faith that death was transition from darkness into light, and that though while here he had seen "as in a glass darkly," on the other side all darkness shall be cleared away, and there shall be no more night.

J. S. HUNT, } *Committee.*
L. S. ZEINER, }

PHILADELPHIA COUNTY.

EDWARD TUNIS BRUEN.

DR. EDWARD TUNIS BRUEN, late vice-president of the Philadelphia County Medical Society, has been removed from our midst by the relentless hand of death. Never physically strong, especially since receiving his degree in medicine in 1873, he rapidly succumbed to an attack of double croupous pneumonia, which proved fatal Sunday, March 31st, less than a week from its incipency. Despite his apparent lack of strength, he exhibited a remarkable endurance and accomplished a vast amount of work in varied lines. As a student he seemed indefatigable, as evinced by his familiarity with medical literature as well as by his service on the staffs of so many hospitals, viz., University, Philadelphia, and German.

In two of these he also gave clinical lectures. As a teacher he was on continuous duty. Besides his work as Assistant Professor of Physical Diagnosis at the University, and lecturer on pathology at the Woman's Medical College, his services were always in demand for private clinical instruction in the Philadelphia Hospital, where he did more work of this nature than any other member of the staff.

In medical societies he was no idler. He was a member of the Association of American Physicians, the American Climatological Association, of which he was vice-president; the American Medical Association, Pennsylvanis State Medical Society, the Pathological, College of Physicians, Philadelphia Clinical Society, and this, the County Medical; and all of these, and especially this one, have reaped many advantages from his active, interested membership. His writings were extensive, not only for the societies, but also of original articles for the medical journals and for comprehensive systems of medicine. He was also a popular private preceptor, and had numbers of students constantly under his direction. For so young a man and one otherwise so actively and continuously engaged, the amount of writing done by him was at least exceptional, if not almost unrivalled. Possessing a keen ambition for excellence in each of these many avenues of effort, they became exhaustive fluxes, sapping his physical resources and making him an easy victim to acute disease. To illustrate the work he was doing we may state that for the week before his attack, besides his private practice, he had fifteen lecture engagements and had sat up with a patient of his, upon whom laparotomy had been performed, for several successive nights prior to his illness, and had only returned from his last visit to her four hours before the initial chill of the attack which ended his earthly labors forever. He had presented the subject of the "Pathology of Pneumonia" before the Philadelphia Clinical Society the Friday night preceding his illness, and the following day made

his last autopsy on a case of pneumonia at Blockley before a class in the "green-room."

Personally, Dr. Bruen was a delightful companion, whose native refinement and rare geniality made him prominent in every gathering which he graced and made him always welcome to a very large circle of professional friends.

This Society has lost through his death an active, interested, and highly valued member in the prime of his usefulness; and many of us feel the loss of a loved and never-to-be-forgotten friend.

J. B. WALKER, }
CHARLES WIRGMAN, } *Committee.*

SCHUYLKILL COUNTY.

REPORT FOR 1889.

THE past year in this locality has been one of unusual freedom from epidemics of any kind, except one of measles in a mild form. We have had about the usual amount of diseases peculiar to the particular seasons of the year. In the first and last quarters of the year, rheumatism, bronchial catarrh, with pneumonia, prevailed and I think they were less amenable to treatment than usual. In rheumatism which mostly assumed the chronic form after a few days' treatment, I have found more benefit by addressing my remedies to the digestive organs and by putting them in good condition and thus sending healthy blood to all parts of the system, than by the long-continued use of those remedies regarded by most physicians as specifics, such as salicylic acid, iodide of potassium, bicarbonate of soda, gum guaiac, etc. The *nodular* form which usually attacks women about the menopause, I regard as incurable under any method of treatment.

In the treatment of pneumonia, I think we have got too far away from the old standard remedies of forty years ago, viz., blood-letting, tartarized antimony, with calomel in large doses for its sedative effect. If called early in a good, strong subject, I should bleed freely from the arm until approaching syncope; in less vigorous subjects take blood locally by cups and in still less vigorous subjects apply the cups dry and then give the tartar emetic in sufficiently large doses to produce free emesis, as I know there is no operation which will empty the lungs of their engorgement of blood like the succussion of vomiting. After the mischief is done, the lymph having been poured out and hepatization having taken place, the treatment must be changed to one of alterative stimulants and counter-irritants, such as blisters, poultices, and liniments. In catarrhal pneumonias of children, the head symptoms, such as convulsions, deliriums, and vomiting in the commencement, are liable to be attributed to an affection of the brain, and the real affection to be overlooked, and treated accordingly; but,

as in all these cases there is rapid and difficult breathing, the careful practitioner will not be likely to make a mistake, as when he is in doubt he can adopt a course of treatment proper for both. As pneumonia generally proves fatal in consequence of heart failure, the necessity for stimulants becomes very urgent in the later stages, and I have given as high as a pint of strong brandy or whiskey in twenty-four hours with the most satisfactory results.

In the second and third quarters of the year we had less than the usual amount of diarrhœa, dysentery, and those diseases the result of high temperature and moisture; but since the establishment of their microbic origin and their treatment by antiseptics they are much more amenable to treatment in my hands than heretofore. For the past two years I have been in the habit of combining the bichloride of mercury with all my remedies in these diseases with the most satisfactory results.

All those cases of chronic catarrh of the stomach accompanied by thickening of its walls, of which we see so much under the name of dyspepsia (a sink-hole into which so many physicians are in the habit of pitching every disease of the stomach they are called to treat of which they know nothing) have the same origin and can only be successfully met by the same remedies. I had a gutta-percha double tube made for the purpose of washing out the stomach with an antiseptic fluid, with which instrument, if you can get the patient to submit, you can relieve all those cases in a very short time. No one who has not suffered from chronic catarrh of the stomach can have any idea of the vitiated secretions which are often thrown up out of the stomach. They are so irritating that they feel as if they were removing the mucous membrane from the œsophagus and pharynx in the passage up. And very many times the smell is very offensive. Anyone who has ever had any experience in treating bladder diseases of old men by the washing-out method will appreciate the force of my argument, as they are parallel cases. I am sure that this vitiated mucus which the glands of the stomach throws out to protect itself is the nidus in which the microbes breed and multiply, consequently the washing out of the stomach with an antiseptic fluid, such as boric acid, removes them and the nidus in which they breed.

He who can treat chronic diseases of the stomach successfully is the coming man. And in my opinion the prevention of phthisis and its cure can only be accomplished by the prevention and

relief of stomach troubles. Let a patient have a good stomach and he can laugh at consumption, as he will be very unlikely to have disease of the lungs without having indigestion first.

We have had quite a number of cases of typhoid fever, most of which had their origin in the city of Philadelphia, and were sent home for treatment. Several cases proved fatal from hemorrhage of the bowels. The antiseptic treatment was that which proved most effectual in shortening and removing the disease. I have found the sulpho-carbolate of zinc the most effectual remedy in controlling the diarrhœa, particularly when combined with digestants.

In the diseases of women we had several cases of metritis, metroperitonitis, as well as pelvic cellulitis, terminating in abscess during the year, but they all did well under the usual treatment of calomel, and opium, etc. All of which is respectfully submitted.

GEORGE W. BROWN, M.D., *Chairman.*

PORT CARBON, May 6, 1889.

DR. F. A. GRIGG, of Mahanoy City, reports the following cases :

CASE I. *Shot-wound through the chest, causing fixation of the diaphragm and degenerative changes of other organs.*—J. L., white, married, aged fifty-seven years; born in Schuylkill County, Pa., carpenter and bridge-builder by trade. I was called to see him for the first time December 28, 1887, and at his request made a careful examination, as he had been to several physicians from time to time for diagnosis and treatment, with a great discord of opinion. I here give my notes of the case taken at that time :

History.—Family history good; no rheumatism, never had malaria or any venereal disease. He enlisted in the army at the age of thirty-four, in the year 1862, was taken prisoner October 12, 1863, and was released April 11, 1865. While in prison he suffered from want and hunger, his principal food being corn and water, and that at irregular intervals. His present trouble dates from that time—previous to this he had enjoyed good health. When released he was much bloated and the doctors told him he had dropsy. Since that time he has suffered with constipation, which is persistent, and has no power to strain or bear down at stool, has loss of strength, an irritable persistent hacking cough, substernal pain shooting to the left hypochondrium and sexually has lost all vitality. He has not been able to work at his trade since that time.

Inspection.—He is fairly well nourished, pectoral muscles slightly atrophied, muscles in general are relaxed and flabby, sterno-cleido mastoid muscles are prominent, neck short, depression in supra-sternal notch, breathing labored, alæ nasi play, respirations when quiet 72 per minute, after fast

walking 82 per minute. Left lung expands more than the right one; right apex somewhat retracted. Apex-beat of heart faintly visible in the sixth interspace, just within the nipple-line. No marked arcus senilis. Shot-wound through the left lung; bullet entered four and three-quarters inches to the left of the centre of the tenth dorsal vertebra, passed forward and upward, penetrating the tissues and lung structure and came out in front, fracturing the eighth rib six inches from the median line of the sternum.

Percussion.—Right lung anteriorly dull vesicular, left anteriorly vesiculotympanic. In right axilla vesicular, left axilla vesicular slightly exaggerated. Posteriorly the quality of note is dull vesicular on both sides. He is very sensitive at points of entrance and exit of bullet. Vocal fremitus and resonance negative. Liver dulness normal.

Auscultation.—Right lung anteriorly vesicular breathing, left lung anteriorly vesicular breathing slightly exaggerated. In axillæ normal vesicular breathing, also posteriorly on both sides. There are a few scattered mucous râles in the inter-scapular region.

Heart.—Apex-beat faintly visible in the sixth interspace just within the nipple-line and is diffused, the pulse-beat when quiet is 92 per minute, on exertion 120 per minute. The beat is quick, thready, and at times irregular. At aortic cartilage the first sound is altered in tone and resembles the second sound. No murmurs. At pulmonary cartilage the sounds are not materially altered. At the apex the first sound is accentuated and simulates the second sound. Do not elicit any murmurs. No murmurs on exertion. The area of heart-dulness is normal.

Remarks.—To my mind there is no doubt that he is suffering from general nervous debility, partly due to obstinate dyspepsia and constipation, and partly to the weak and irritable state of the heart and to the habitual shortness of breath from which he suffers. He suffered while in the army from a severe wound through the left side of the chest which has undoubtedly been in large part the cause of the serious disturbance of breathing and circulation. In addition to this he suffered while in the army from exposure, ill usage, and want, and his physical disability dates back distinctly and solely to that time. There has been no other cause to explain the conditions which exist. It seems probable that the prolonged interference with nutrition has induced degenerative changes in the heart.

Treatment.—I put him on the tincture of digitalis and tincture of nux vomica, five drops of the former and six of the latter to be mixed when taken, in water, three times a day, and the nux vomica to be taken in ascending doses. He also took one tablespoonful of cod-liver oil in a little whiskey after each meal. For the cough, which was very annoying, especially at night, I gave

R.—Morphiæ sulph.	.	.	.	.	.	.	.	$\frac{1}{8}$ grain.
Atropiæ sulph.	.	.	.	.	.	.	.	$\frac{1}{100}$ "

M. ft. in pil. No. j. Sig. At bedtime.

with the most happy result as far as the relief of his cough was concerned. He did fairly well on this treatment, but five or six weeks after this, at his solicitation, I took him to Dr. William Pepper for diagnosis. He concurred

with my views as given above, and said owing to the fact that he has no power to bear down at stool, he believed there were degenerative changes in the diaphragm as well. For the tincture of digitalis and nux vomica we substituted the following pill:

R.—Strychniæ sulph	.	.	.	.	.	.	.	$\frac{1}{30}$ grain.
Acidi arsenios.	.	.	.	.	.	.	.	$\frac{1}{60}$ "
Ext. belladonnæ	.	.	.	.	.	.	.	$\frac{1}{15}$ "
Ext. gentianæ	.	.	.	.	.	.	.	} āā 1 "
Pulv. digitalis	.	.	.	.	.	.	.
Pulv. scillæ	.	.	.	.	.	.	.

M. ft. in pil. No. j. Sig. One three times a day.

Codeia from time to time was used in place of the morphia and atropia, but was very much inferior and would often fail to relieve the harassing cough.

On the above treatment, with a few changes from time to time, the patient did well and was able to do light work, something he could not begin to do heretofore. His respirations became less frequent, his heart much more regular in its rhythm and less excitable.

He got along well beyond my most sanguine hopes, with the exception of an occasional cold, and twice he had congestion of the lungs which yielded to treatment.

On January 15, 1889, I was called in again. This time he complained of a good deal of substernal pain and stitches in both sides, with great difficulty in breathing, and a dry, harassing cough. To be brief, he had all the physical signs of inflammation of the bases of both lungs, and only a repetition of what he had had several times before, but more severe. Two weeks after this, Dr. Sherman saw the case with me. He substantiated my diagnosis and treatment, which was that usually employed in these cases. He became jaundiced, his skin was saffron-colored, and his urine became bile stained and contained considerable albumin. Expectoration came freely, and at the end of the fourth week his general condition was better. Throughout the course of the disease there was more or less œdema of the feet, ankles, and hands. On the morning of the 25th of February the case became complicated by erysipelas. Dr. Sherman saw the case again with me on the 27th, and on the 28th he died.

Autopsy.—Drs. Sherman and Brindel being present. The upper lobes of both lungs were crepitant, and the air-vesicles over-distended. The lower lobe of the left lung was hepatized, as were also the two lower lobes of the right lung, with plastic pleurisy on the same side. The shot-wound referred to, under inspection, entered four and three-quarters inches to the left of the tenth dorsal vertebra, passed forward and upward, penetrating the lung, diaphragm, pericardium and pleural membrane, coming out in front, fracturing the eighth rib. There was a spicula of bone projecting inward, that no doubt had been the cause of the great tenderness of which he had complained. All of the above structures were glued together by inflammatory adhesions which were so adherent to the thoracic wall that they could not be broken up by the hand.

The pericardium was enlarged and drawn backward by the adhesions ; on being opened it contained about half a pint of serous fluid.

The heart showed dilatation with hypertrophy ; both ventricles were very much enlarged, the right one containing ante-mortem clots (buffy). The valves were normal, and appeared healthy. The tissues of the heart were more or less friable. No atheroma of the large arteries. The liver showed some congestion, but we could find no organic lesions. The stomach was enlarged, and the walls thin.

The spleen was five times its normal size, and was displaced backward by inflammatory adhesions. In fact, I thought I was removing a greatly enlarged kidney that was adherent to the surrounding tissues.

Both kidneys were enlarged, the capsules peeled off easily, and were both cystic and friable. The left kidney contained more cysts than the right, and was considerably larger.

Summary.—It is a well-established fact that the diaphragm is the principal muscle of respiration, and a very important accessory muscle in defecation or parturition, and anything that interferes with the natural and automatic movements of this muscle, either directly or through the phrenic nerves which go to it, must more or less seriously affect the natural working of these organs ; therefore, when, as in this case, the diaphragm is staid on one side by plastic adhesions to the lung, pericardium, pleura, and the chest-wall, and on the other by an adherent pendulous spleen, which has, in addition to its own weight, the weight of the pancreas and stomach, is it any wonder that this man had such difficulty with his respiration and in evacuating his bowels ? In addition to the above, we find a sharp spicula of bone projecting from the eighth rib inward against the pleura, which accounts for the continual pain which he suffered.

The excited action and irregular beating of the heart which were so conspicuous a symptom in this case, were due, I think, in part to the above-named pathological conditions, and in part to degenerative changes in the heart itself and the peripheral endings of the pneumogastric nerve, with a probable irritation of the accelerator nerves of the heart—all of which was brought on by a prolonged interference with nutrition.

Microscopical examination of the heart shows a fatty, metamorphosed condition of the muscle.

Surgical interference would not, I think, have materially benefited or relieved the suffering in this case. It is true, however, that a resection of the eighth rib would have caused the removal of that

projecting spicula of bone, which, to say the least, must have been very annoying.

CASE II. *Acute arthritis of the knee-joint in an infant three months old.*—About the 1st of April Mrs. E. noticed her child was very fretful, and when handled would scream, presumably from pain. The family doctor was called in, who located the trouble in the knee, and gave some medicine to apply to the affected part. It probably was the tincture of iodine. This did no apparent good, as the disease progressively grew worse. The physician was discharged and another employed, who ordered flaxseed-meal poultices to be applied warm and changed frequently.

On April 27th I was called in consultation. I found the child very restless and peevish. The pulse-rate was 180 per minute, and the temperature 103.2°. The left leg was flexed on the thigh, the flexor tendons were moderately contracted, the knee-joint was much swollen, and was twice the size of the opposite one. The capsule of the joint was distended with fluid, and the patella floated off from the articulation. On manipulating the leg the child seemed to have intense pain. I passed an exploring needle, and found the fluid to be purulent. We made a free incision over the external condyle of the femur, and let out half a pint of laudable pus. The wound was washed out with a weak solution of carbolic acid daily, poulticed with flaxseed meal, and the part put at rest. The bowels were kept regular, and tinctura ferri chlor. and quinia sulph. given in tonic doses. That same night the child rested well—something it had not done for several nights previous. The fever abated, and it went on convalescing nicely.

I saw it for the last time on May 15th. The swelling had about all gone, the joint was a little larger than the opposite one, the flexor tendons were still slightly contracted, and there was limited motion in the joint, with a very little tenderness.

I have little doubt that there will be more or less perfect motion in the joint, because, as a rule, children under one year old seldom or never become ankylosed in this disease.

The mortality in these cases is very high, being, according to statistics, over fifty per cent.

Dr. JAMES S. CARPENTER, of Pottsville, gives the following as an illustration of a class of cases in which an aggravated trouble of long standing may be due to a very ordinary cause:

CASE I.—While attending one of my patients, my attention was called to a child of eight months by its mother, who was visiting at the house, and who desired me to tell her if anything could be done for the infant's relief. I asked to see the trouble that for the past seven months had been wearing out the mother's strength and taxing the scanty family purse in a vain search for a cure of the infant's disease. In fact, at that very time she had left her

home to come to Pottsville to secure some quack remedies of which she had heard as being potent in skin diseases; and, long since wearied at the inability of a large number of physicians, who in turn had treated the child, to relieve it of its sufferings, she was ready to grasp at anything that could promise even palliation of the long-continued evil. The child was puny and fretful, and, unless nursing, did not know a moment's rest; nor could the mother escape the effect of such incessant calls upon her strength, not having known, as she told me, a good night's rest during the whole period of her baby's illness.

Examination showed a frightfully inflamed condition of the skin, extending from the epigastric region to below the knees, and almost encircling the body between those points. The child, in spite of such constant nursing as was necessary to quiet its cries, was but poorly nourished, and I found that it vomited almost all the maternal aliment soon after its ingestion. Now, what produced such an extensive eczema as was found here, and what was the disturbing factor in the child's nutrition? Had the latter any dependence upon the former, or was the inanition due to deficient nutritive quality in the mother's milk? I noticed the particularly violent character of the inflammation just between the thighs and in the pubic region, and, on closer examination, discovered the prepuce to be entirely adherent over the glans penis, and that a pin-hole opening alone gave vent to the urine, which, as I was making my investigation, dribbled out in a few drops and ran down over the scrotum. The solution of the whole matter was here presented. The adherent prepuce and pin-hole opening did not permit free escape of the urine, and a condition of retention had been the result, with all its accompanying ills; added to, in this instance, by the violent dermatitis which the constant dribbling of the ammoniacal fluid over the abdomen and thighs had provoked. The nervous or reflex symptoms of this trouble (phimosis), sometimes exhibited in epileptiform seizures, were here displayed in the constant vomiting, and I felt satisfied that the cure of the phimosis would result in the perfect cure of the long-standing disorders. I operated the following day, and, after the attendance necessitated thereby, I did not see the little patient for nearly six weeks. I could scarcely believe it to be the same child I had operated on nearly two months before. The child was hearty and fat, the skin in normal condition, the vomiting had ceased, and the cure was complete.

A little more care in examining the case, by any of the half-dozen or more medical men who had been consulted about the child—in other words, the establishment of a correct diagnosis—would have prevented much needless suffering. In connection with the subject of phimosis operations, let me say that I have taken a hint which I received while witnessing the performance of “circumcision” as it is done by the Jewish rabbi—that is, to bandage the limbs of the child up to the middle of the thighs—when it is an easy matter,

after chloroforming the little patient, to proceed in the operation unassisted. It simplifies matters astonishingly.

In obstetrical work my record is an unbroken one, and for this result I am not indebted to anything beyond *strict cleanliness*, as far as can be carried out—in some cases there is an amazing lack of it, in spite of all that the attending physician can do—and to prompt and vigorous measures taken on the appearance of any unfavorable symptoms during the puerperium.

While, in the great majority of cases during the past year, I have not noted anything of moment to disturb the progress of the patient toward convalescence after childbirth, yet, in several instances, I have been seriously alarmed by the appearance of peritoneal and metro-peritoneal troubles, and would present this brief account of them to your notice, with the treatment I employed with such gratifying results:

CASE II.—Mrs. —, multipara, in labor with her third child. Labor perfectly natural, and a large, healthy child was born several hours after I was summoned to the house. Nothing occurred to interrupt a very satisfactory progress until the fourth day, when two violent rigors occurred, and when I saw her she was in a high fever. The lochiæ were entirely suppressed, the abdomen very much distended and excessively painful on the slightest pressure, the tongue dry and brown, with a glazed surface, and every indication of metro-peritoneal inflammation. Besides the usual treatment of quinine and antipyrine, and vaginal douches of hot, carbolized water every three hours, I prescribed half-ounce doses of a saturated solution of Epsom salts every two hours until they produced free, watery evacuations. Under this plan of treatment, within two days the tympany had disappeared, the fever had subsided, the lochial discharge was reëstablished, and all danger averted.

CASE III.—Mrs. McG., multipara, was delivered of her ninth child after a natural labor, during the latter part of which chloroform was administered, owing to the extreme nervousness of the patient, who became almost uncontrollable under the severer pains of the expulsive stage. Three days later, at my morning visit, I found my patient in a high fever, the countenance flushed and anxious, the abdomen tympanitic, and very scanty lochial discharge, with severe abdominal pain. I learned that the previous night she arose when the room was very cold, and, after her return to bed, had been seized with a chill, which was followed by the above symptoms. Owing to the lack of good nursing, vaginal douches could not be carried out, so that the same treatment was ordered, with this exception, as in Case II., and an equally gratifying result was obtained in the complete disappearance of these alarming symptoms within thirty six hours.

The following case combines several interesting features, since, in addition to its being one of puerperal eclampsia, a metro-perito-

nititis was set up after recovery from the immediate dangers of the eclamptic condition :

CASE IV.—Mrs. F., primipara, about seven and a half months pregnant, was seized with convulsions, violent and long continued in their character. I bled her about a pint at my first visit, when she became conscious ; but she had successive seizures during the day, in spite of the fact that the means taken to secure free purgation were successful, and the action of the kidneys was tolerably free. The chloral and bromide mixture was not retained by the stomach, and bleeding was again resorted to later in the day, when quite thirty-two ounces were abstracted, followed by a hypodermic of $\frac{1}{2}$ grain morphia sulph. and $\frac{1}{80}$ grain atropia sulph. At my evening visit I found her sleeping quietly, and she had been entirely free from convulsions since four o'clock that afternoon. Vaginal examination, which up to this time had shown no sign of any dilatation of the os, still gave no evidence of any intention on the part of nature to expel the contents of the uterus. With considerable difficulty I introduced my finger through the internal os and ruptured the membranes ; having secured a dilatation capable of admitting three fingers, I left my patient, still sleeping quietly, until morning.

About eight o'clock the next morning, being summoned, I found labor well advanced in the second stage, and the head down on the perineum. The macerated condition of the foetal head and the inefficiency of the pains led me to give manual assistance, and in about half an hour after my arrival I delivered a dead foetus. I then inserted two fingers into the uterus and, with much difficulty, separated the placenta entire from its adhesions to the uterine walls. Two days later she had a chill, and the symptoms of metro-peritonitis followed. The same treatment was pursued as in Case II. ; after an anxious period of several days, the inflammatory symptoms subsided, and the patient recovered.

As a result of the use of the saturated solution of Epsom salts in these cases, together with others of a similar character reported, there is little doubt, to my mind, at least, of the great superiority of this treatment over the old plan of "splinting the bowels" when the threatened outbreak of peritonitis is close upon you or during the actual presence of this much-dreaded disease. With "the old method," so called, there is only one indication that can be said to be met, viz., the intense pain, for which opium in such large doses is given, and very often without satisfactory result either to the patient or to the physician. The patient must either be permitted to suffer, in spite of the employment of the opium, or else so much of the drug be administered as to cause the physician no less anxiety than does the disease itself. If it be said that the calomel is intended to exert a specific action on the inflammatory trouble through the secretions, what satisfactory effect can be anticipated

in the face of such large doses of an antagonistic drug like opium, which places a double lock upon the glandular apparatus from the mouth to the anal opening?

In the disease in question, as it occurs in puerperal patients, we are met at the outset with a condition of greatly lessened, if not suppressed, secretions, as shown by the dry, brown, glazed tongue, the suppressed lochial discharge, constipation, and lessened renal activity, the summing up of which perverted action is exhibited in the intense suffering, and the febrile condition of the patient. Now, which mode of treatment would seem to meet the requirements of the case? One which addresses itself to *a symptom*, the pain alone being practically considered in the opium and calomel treatment; or that which, striking deeper, endeavors to restore the secretions while, at the same time, it removes the abnormal conditions presenting themselves as mere symptoms of the diseased state? In each of my cases the establishment of the watery evacuations from the bowels marked the amelioration of the threatening symptoms, tympany was lessened, suffering relieved, and fever dissipated, and this within a period of thirty-six to forty-eight hours, which is in marked contrast to the results obtained from the employment of opium and calomel. If, then, the Epsom salts treatment of peritonitis is not only the more rational method, but also productive of speedier relief to the suffering patient, and accompanied by a mortality-rate that is practically *nil*, it cannot be undeserving of adoption at the hands of the profession.

In a number of surgical cases treated during the past year I have met with nothing of any unusual character or deserving mention, unless it be to note the following one of abscess of the chest-wall, of a dissecting character, which extended from the left infraclavicular region to the eleventh rib, literally embracing the whole of the chest-wall, except a portion of the mammary region and along the spinal muscles:

CASE V.—Mrs. S., about thirty years of age, after a severe chill, followed by high fever, was seized with violent pain in her left shoulder radiating along the arm and to the finger-tips, when seen by me two days later (March 25th), presented the following symptoms: High fever, a thickly-coated tongue, anorexia, headache, constipation, and severe pain experienced as before described. Just under the left clavicle, about the middle third, a small swelling, about the size of a hazel-nut, could be seen, painful to the touch, but not presenting any other signs of an inflammatory character.

The severest pain was felt in and around the shoulder-joint, and the least movement of the arm was productive of intense suffering.

Rheumatic treatment was instituted for diagnostic purposes, but, as this gave no relief, the patient was placed upon three-grain doses of quinine every three hours, alternating with one-sixth of a grain of calomel at the same intervals, the diagnosis of a bilious remittent fever being made, with the probable concomitant trouble of traumatic abscess, from the history of the case. This treatment was continued, and about nine days from the incipient chill there was a critical sweat, and a complete intermission obtained for the first time. The local troubles, however, did not share in this improvement of the remittent disorder, pain being persistent, and only controlled to a slight extent by the measures directed to that end. About two weeks from the commencement of the attack the patient had another chill, and, following this, fever and profuse perspiration, signs strongly indicative of suppurative process, yet there was no sign of the presence of pus in the now greatly increased swelling, which extended from acromion to episternal notch and from clavicle to upper border of fourth rib, a dense, brawny-looking affair, doughy in feel, but entirely wanting in those conditions significant of an acute process. The fever continued, with profuse and exhausting perspiration, the pulse very rapid and feeble, and to add to the difficulties of the case, such gastric disturbance appeared as rendered necessary not only the restriction of the patient to a koumiss diet, but also the entire withdrawal of medicines and stimulants. The local treatment had been confined to active counter irritation over the seat of trouble, as long as this seemed possible to effect a beneficial result, but when the chronic character of the trouble revealed itself, emollient poulticings were continued until suppuration was fully established. The cellular infiltration gradually extended, and soon involved the whole of the axillary space, the anterior portion of the left chest being now fully an inch above the level of the right side, and no appearance of abscess-formation that warranted the use of the knife. This was three weeks from the time I had been called to the case. For two weeks longer this state of things continued, and almost the whole of the left chest, anteriorly and posteriorly, shared in the cellulitis, which had descended as low as the eleventh rib, the left side from the axillary space being greatly infiltrated, and of a dark, purplish color, while over the left scapula there appeared a soft, fluctuating tumor, which, enlarging from day to day, had attained to the size of a foetal head, but was entirely wanting in any other inflammatory signs than the slight pain and swelling afforded. The physical condition of the patient was a very grave one, and although no medicines or stimulants had been administered for about ten days, the large amount of koumiss taken and retained led me to hope for her recovery, if the immediate effects of the operation now necessary could be safely met.

On April 28th, having chloroformed the patient, fearing the shock of *the pain* upon the cardiac ganglia more than the effect of the anæsthetic carefully administered, I made a deep and free incision at a point in the axillary line on a level with the eleventh rib, expecting the one opening to drain off the entire abscess. The amount of foul, chocolate-colored pus that gushed out was astounding, and from what I collected in a basin, after all the cloths

at hand and the bedding had been saturated, I concluded that fully a gallon of purulent fluid had been evacuated. For a week afterward, at each dressing very large quantities of pus were discharged, and on May 5th I made a counter-opening, after chloroforming the patient, with very satisfactory results, as in several days after the secondary operation both openings had nearly healed, and the discharge almost ceased.

Immediately following the opening of the abscess, the collapse was nearly fatal to the patient, and for a week subsequently she continued to be so exhausted that I feared she might die at any time. A fortunate result of the operation, however, was the immediate relief of the gastric irritability, and I was able to give generous quantities of stimulating food, as well as the much needed brandy, half-ounce doses of which were given every two hours until convalescence was assured.

The present condition of the patient, while still exhibiting traces of the desperate struggle through which she has passed, gives full reason to expect a complete recovery; and the tonic effects of the iron and quinine which she is now taking, and the increased consumption of food, are daily manifesting themselves in her greatly improved appearance and returning strength.

DR. J. C. GRAY, of Cressona, reports the following case :

Mrs. D., aged thirty-four years; mother of four children, and has also had three miscarriages; married at seventeen. Her health was very good until six years ago, the date of the birth of her last child. Through carelessness of a druggist she took a teaspoonful of the following mixture :

Hydg. bichlor.	.	.	.	.	.	.	.	.	3ij.
Aqua	.	.	.	.	.	.	.	.	3ij.

She vomited blood and shreds of mucous tissue for some few days after this, and also passed the same per rectum. She was kept on a liquid diet for a year following this, being bothered constantly with pains and soreness in her stomach and bowels, and also having hypochondriacal attacks and hallucinations continuously. However, she was able to be about and attend to her household duties by the end of the second year, at which time I was called to see her, and have treated her continuously, with intermissions of a few months, since. In the spring of last year she passed, per rectum, complete casts of the intestines, probably six inches in length, and was of a costive habit until September, when she was seized with diarrhœa, it being amenable to treatment by a few powders of bismuth subnit., with Dover's powder. This went on for a few weeks, when suddenly she would be seized by severe pains in the abdomen, and a few watery stools would follow. I endeavored to build up her digestion, and also control this trouble, by the use of pepsin, with aromatic sulphuric acid and tinct. opii. This checked the diarrhœa and improved her appetite very much, but it did not last, she being, in the course of a few weeks, seized with severe chills, intermittent in type, followed by cramps in the stomach and a slight looseness of the bowels with great tenderness over region of ascending colon, and bilious vomiting, followed, in a few days, by fever, ranging in temperature from 101° to 104°.

and even 105° at times, with a short, quick, wiry pulse. My diagnosis, at this time, was typhlitis, followed very soon by peritonitis, great tympanitic distention of the abdomen existing, and severe pains continuously. I gave her, during this period, opium in the shape of morphia, 4 gr. every two, three, or four hours, as required, to keep down the pain. For three consecutive weeks she lay in this condition, taking pieces of ice constantly until her stomach would become distended with the water produced by it, when she would vomit. I ordered her milk; she would sometimes manage to keep it down for an hour or two, then she would vomit the greater part taken. The latter part of the third week she was able to take beef-tea and about a half-pint of milk in twenty-four hours and retain it, and finally she could take as much as a pint of milk and a few tablespoonfuls of beef peptonoids in the twenty-four hours; but, as she began to take nourishment and temperature began to subside, she again was bothered with watery evacuations from her bowels. Another trouble now made its appearance, which gave her a great deal of annoyance and me a great amount of trouble. It was a hardened mass, extending from the right hypogastric region clear across to the left, and being very sensitive to pressure. The entire abdominal region was covered, apparently, with nodular masses, and the lymphatic glands were plainly perceptible. I made an exploratory examination of the womb; found it pressing hard down against the pubic bones, and enlarged so that the sound passed four inches, and a large pedicle extending down from the right wall of the os; all was excessively tender and bound down tight, probably being more than half as large as an ordinary person's head. Right leg was partially paralyzed from pressure of this tumor. I thought this on the right side in region of ileo-cæcal valve was possibly a collection of fecal matter, and ordered magnesia sulph., with large enemata of lukewarm water; the bowels moved freely, but it still remained the same. After consultation with Dr. Brown, of Port Carbon, I gave her the following:

R.—Strych. sulph.	.	.	.	.	.	.	.	gr. j.
Hydg. bichlor.	.	.	.	.	.	.	.	gr. j.
Pepsin cryst.	.	.	.	.	.	.	.	℥ij.
Glycerin	.	.	.	.	.	.	.	℥iij.
Acid phosphate	.	.	.	.	.	.	q. s.	℥iv.

Giving her a teaspoonful three times a day, and used locally a mixture of mercurial and belladonna ointments. Her bowels would not or could not move were she to sit in the usual position, but she was compelled to be in a half-reclining position at such times. She had scarcely any fever now. I continued this a month, using Carlsbad salts, ℥j every morning; but her bowels would move every second day, and if they did not, that night she would have cramps. There always seemed an insufficient amount of space for her stools to pass, and they were very offensive; had to be watery before they could pass at all. This treatment was kept up, with an occasional dose of opium, for two months or more, when a fearful, offensive discharge made its appearance simultaneously per rectum and per vaginam; this continued for a month. I used to overcome soreness produced by it with suppositories of opium with iodoform, and stopped opium by stomach. The discharge had

ceased two or three weeks per vaginam before it did per rectum. She finally regained the use of her leg, and to-day is able to be about. Is still sensitive over abdominal region, but has no appearance of tumor, and will be tolerably comfortable in a month or so if she continues at this rate. I should state that she constantly used injections of lukewarm water per vaginam during the discharge.

DR. S. C. SPALDING, of Shenandoah, writes :

Shenandoah is the largest town in the lower anthracite or Schuylkill coal fields. It is situated north of the Broad Mountain, and contains a promiscuous population of 17,000 souls.

During the past year, from June 1, 1888, the following diseases have prevailed as epidemics: typhoid fever, dysentery, pneumonia, rubeola, varicella, rötheln, rheumatism, and there have been sporadic cases of scarlatina, erysipelas, diphtheria, pertussis, etc. The only one of these diseases which is unusual in the town is dysentery, which has never before been known to prevail as an epidemic, as far as I know, since the settlement of the town, about twenty-six years ago. Before going further it may be well to refer to the sanitary condition of the town.

Shenandoah is situated in the midst of mountains, over numerous veins of coal, and the available land or lots for building purposes is pretty well used up, and is scant for such a population as it contains. The result is that whilst the streets are wide and well laid out, the lots, which are thirty feet wide and one hundred and fifty feet deep, extending from street to alley, have double dwellings erected upon the fronts and alleys, so as to accommodate four families, and in the Hungarian and Polish quarters, from fifteen to twenty people live crowded together in three or four rooms. These people live cheaply, work for low wages, and yet save money, but at the expense of comfort and cleanliness. The alleys are the receptacles of all kinds of rubbish and offal, and are only cleaned once a year, in the spring season, when the Chief Burgess and High Constable, accompanied, perhaps, by the Sanitary Committee of the Borough Council, inspect the streets and alleys, and order a general cleaning up, which improves things for a time.

The cesspools are numerous and badly kept, and emit very disagreeable odors in some parts of the town. The sanitary affairs of the town are vested in three members of the borough council, none of whom understand anything about the principles of

hygiene, there being neither a physician nor civil engineer on the committee; therefore it is not to be wondered at that an epidemic, such as typhoid fever or dysentery, rages with fury when it breaks out in the crowded sections of the town. Last summer when diarrhoeal affections and dysentery were so prevalent here, I attributed the infection to the water supply, but as no analysis of the water was made, and as the water company is largely composed of stockholders who reside out of town, and who have a monopoly in supplying the town with water, and as the duty of keeping the reservoirs clean and in good condition devolves upon them, there is very good reason to believe that our water, which should be the purest and most wholesome, is far from it, and as a reason for saying so, it is a known fact that boys and young men have been a number of times caught bathing in the reservoirs, and dead animals have been found at the bottoms of the reservoirs and in the pipes when cleaning them out.

From a residence of eighteen years in the town, I was always boastful of the good pure water to be had here, until last summer when I found it unpalatable and dirty looking, and I advised my patients to drink it as little as possible. The dysentery which prevailed here was of a grave type, and a number of adults, male and female, succumbed to it, as many as two or three dying in a few families. Typhoid fever prevailed in the summer and fall, and it, too, claimed its share of victims, although I think the mortality was less than in the cities. We have had very many cases of pneumonia, combined with pleurisy, and in many cases assuming the chronic type, and in protracted cases a low typhoid condition. With an efficient board of health, I believe Shenandoah could be made one of the cleanest and most healthy towns of the county, but in its present condition, to travel its streets and alleys is anything but a pleasant task. For the first time in the history of the town, r  theln or German measles has prevailed as an epidemic, although I have seen sporadic cases in previous years. The disease, as I observed it, is accompanied by slight fever, a larger and less complete eruption than in rubeola, some sore-throat, and requires very little treatment; recovery from it is rapid and complete in my experience.

One case of interest, which came under my observation, was what I diagnosed as Addison's or the bronzed-skin disease.

CASE I.—A miner, of good physical constitution, and appeared in good health; consulted me in May, 1888, complaining of general debility, and saying that he had been buried under a mass of coal whilst working at the Kohinoor colliery of the P. & R. C. & I. Co., in October, 1887, and after being released he walked home, a distance of a quarter of a mile, and did not consider that he was much injured. The next day he felt very sore and stiff in the back and limbs, but did not deem it necessary, he said, to call upon a physician. After a short time he resumed work, but said he did not feel as strong as before the injury. I examined him and found the skin of the breast of a deep brown color, as also the skin of the shoulders and limbs of a brownish tint, with weakness of the lower spinal region, and some pain on pressure over the kidneys. I diagnosed Addison's disease, and prescribed for him the syrup of the iodides of iron and manganese, and ablutions with Fels' germicide soap; for a time there seemed to be some improvement, but as he is supposed to drink too much at times, and I suppose, not satisfied with me, he consulted other physicians.

I related the case to the Schuylkill County Medical Society at the regular meeting in September, 1888, and asked for information on the subject, but received none, and I am still of the opinion that my diagnosis is right, although a fellow practitioner who has treated him since thinks differently. I believe that the fall of coal on his back, bearing down and bruising him over the region of the kidneys, caused congestion, which was not duly looked after and properly treated, thereby resulting in disease of the suprarenal capsule, which is the pathology of Addison's disease.

CASE II.—An interesting case of mammary abscess, in a little female child, three weeks old, came under my care not long since; the parents were natives of Poland, and looked to be very healthy; the father said the affection was of four days' duration, and that they had poulticed it with ground flaxseed, and wished it opened. I made an incision one inch in length, giving vent to a quantity of offensive matter. The father claimed that my incision was too free, but I assured him that it was not so, and though the little one cried lustily for a short time, in less than five minutes it greedily took the nursing-bottle, and then the father told me that if the babe lived to be sixteen or seventeen years old, it could not use that breast to nurse a child, which I thought was a far-sighted view to take of the matter.

DR. A. B. SHERMAN, of Mahanoy City, reports a case of epilepsy treated with curare in solution—7 grains in 25 minims water, with 2 drops of hydrochloric acid—and would like other practitioners to report their experience with the drug in like cases:

J. R., aged forty years, miner, came to me on January 24, 1889, suffering from epilepsy. He could give no history of having received an injury upon his head; had had convulsions about two years, about once a week at first, becoming more frequent, until, when he came to consult me, he had four or five seizures per day. I used above preparation, eight drops beneath the skin every seven days, with the effect of reducing the seizures in frequency

and severity, he having been twenty-four days without a convulsion—from February 10th to March 5th, at which latter date he went to the Miners' Hospital.

REPORT FOR 1890.

The meetings of the Society have been very well attended the past year and of much interest to all. At each meeting a paper on some medical subject was read and very generally discussed by the members present, and the percentage of attendance was higher than for many years previous.

The Society met with its greatest loss in the decease of Dr. George W. Brown, of Port Carbon, who succumbed to the depressing influences of the epidemic disease, which was so prevalent in this county the first few months of the present year. Dr. Brown's work, so long continued almost in our midst, has left its own impress upon the mind of each one of us, and few can forget the positive character of this faithful worker in our profession, nor help being influenced by the devotion to duty which he ever manifested. In his death the Schuylkill County Medical Society lost not only its oldest member, but one who, in spite of his advanced age, had always manifested an interest in its welfare that would put many a younger man to the blush, and which served as an incentive to greater effort when zeal had flagged. A fuller mention of his life's work, and of all that he had achieved, is rendered unnecessary here, owing to the action of the Society in regard to his death, and the biographical sketch made at the time, copies of which are within the reach of every member.

The appearance of an epidemic of influenza during the past year will long be remembered, both by those of us who were its victims, as well as by those who labored so unremittingly for the relief of the large majority of our lay brethren affected by it. The character of this disease as treated in this county partook of several varieties, the neuralgic type predominating in those treated by us, although an inflammatory or gastro-intestinal type was not infrequently met with, the patient being struck down as by an irresistible force, that for the first twenty-four hours presented very alarming symptoms, and from which recovery was unusually protracted. The unwillingness on the part of many to confess themselves sick enough to observe even ordinary precaution was, in too many instances, followed by a pneumonia which rapidly tended

toward a fatal event. This was particularly noticeable in those of advanced years, whose powers of resistance were weakened no less by the disease than by a too tardy recognition of the necessity of conserving all the strength to which they could lay claim at their time of life. In one of the fatal cases met with by us, the patient, aged seventy-four years, had been suffering from a cold for four or five days previous to medical aid being summoned, and although the pneumonitis was not extensive, the degree of prostration was out of all proportion to the diseased condition, death resulting, in spite of a stimulating treatment, from an intercurrent affection superinduced by the epidemic disease. In this case was observed the frequently noted effect of the disease on the mental faculties, the patient becoming, at times, almost uncontrollable from his delusions, and refusing for hours at a time to take nourishment or medicine.

The catarrhal symptoms were not at all prominent in most of the cases treated by us, a very small percentage of them manifesting the typical influenza symptoms, *e. g.*, the watery eyes, photophobia, the catarrhal condition of nasal and bronchial mucous membranes, and the severe post-cervical pain common to the disease.

On the contrary, after a chill or slight shiverings, the patient would experience intolerable pain in the lumbar region, or in the epigastrium or hypogastrium, which would require energetic measures to overcome. Fever was an almost constant accompaniment, the feeble pulse evidencing by the lack of arterial tension the depressant effect of the disease upon the spinal ganglia. Somatic pains were an invariable accompaniment, ranging in severity from mere aching and soreness through the entire muscular system to cramp-like pain located in special groups of muscles. In one of the first cases of the disease treated by us, beyond a slight malaise experienced by the patient, the entire trouble seemed to establish itself in the ocular muscles, so that she was well content to lie in bed with eyes closed as the only means of securing relief from acute suffering.

The line of treatment pursued was, in general, that of quinine and Dover's powder, and was the one most relied on by us, although the employment of antipyrine was much indulged in by a large number of our medical brethren. It may be questioned, however, if the free use of a depressant drug like antipyrin was

quite as logical a procedure (in this disease) as the employment of the more tonic quinine treatment. Calomel was often prescribed in combination with the Dover's powder, and when there was great depression of vital powers atropia and the carbonate of ammonium were of great advantage. For the severer types of neuralgic pain sometimes met with, where the quinine would fail to effect the desired relief, gelsemium was of great advantage. The period of convalescence was the one most fraught with danger to the patient, it may be truly said; for then, being free from the surveillance of his physician, he would often become unmindful of his advice, and, risking a too early going out, precipitate a congestive attack, which so frequently resulted in a fatal pneumonia. Following close upon the footsteps of this epidemic has appeared an outbreak of the exanthematous fevers, and we have had a large number of cases of scarlatina, morbilli, rötheln, varicella, and also some diphtheria of severer type.

The effort toward establishment of good sanitary methods in this community will never be successful until a local board of health is one of the recognized factors to that end. We well know how often it occurs, that cases of scarlet fever, diphtheria, or measles, are being treated in the same house from which other children are permitted to go unrestricted to school, or to mingle in play with their companions, simply because of the lack of a duly constituted authority to place the infected dwelling under restrictions best calculated to promote the safety of others.

It is not sufficient, in many cases, for the physician to say what must be done, regarding the members of the family who are not under his care, to insure its accomplishment; in the greater number of cases we may trace the origin to that hapless, easy-going custom, by which the convalescent from measles or scarlatina is allowed to return to school a week or ten days earlier than is consistent with the safety of the others to do so. In some cases, however, the physician himself is neglectful of those needed precautions which it is his highest duty not to disregard. We recall, in this connection, a case of malignant scarlatina or diphtheria, which was treated homœopathically, until "the course of Nature" came to an abrupt termination, and during its continuance the family cow was supplying several families within the town with milk, that to the homœopathic eye, in this instance unprovided with lenses capable of discerning infinitesimal microbic specimens, was

sufficiently healthful not to be proscribed as having disease-bearing germs lurking in its corpuscular elements. As the direct result of this negligence or ignorance, there was an outbreak of scarlatina in one of the, happily few, families thus supplied with the infected milk, three children and a servant being stricken down with the disease.

In addition to the remarks upon this subject in the Report for 1889, we offer the following conclusions on the *treatment of peritoneal inflammations*, based upon our experience in a series of cases of this character.

A. In peritonitis arising from perforation of the bowel, met with during the course of typhoid fever, and from appendicitis, the opium treatment, pure and simple, offers the only hope of cure when surgical procedure is not adopted. In this condition peristalsis must be overcome and an *artificial paralysis* of the muscular coat of the bowels be produced by the overwhelming doses of the opiate, in the hope that thereby adhesive inflammation may obliterate the otherwise fatal lesion of the intestine.

B. In cases arising from sepsis, either in the gynecological field or during the puerperal period, large doses of a saturated solution of Epsom salts give the quickest results and the speediest relief to the patient's sufferings.

C. In peritonitis due to typhlitis, impacted feces, or similar cause, where the inflammation is circumscribed, calomel in small and frequently repeated doses with mercurial inunctions are of advantage. Accompanying these means should be the frequent employment of enemata, as often as every two or three hours, until the bowels become soluble. Morphia should be administered hypodermically as indicated by the suffering of the patient.

D. In acute diffuse peritonitis we should not hesitate in employing the same method of treatment as in puerperal peritonitis, using hypodermic injections of morphia as required by the sufferings of the patient.

JAMES STRATTON CARPENTER, M.D.,
Chairman of Committee.

DR. T. A. GRIGG, of Mahanoy City, reports as follows :

During the early part of last spring *acute articular rheumatism* was very prevalent. It affected both old and young, and rapidly assumed the subacute and chronic types, proving very obstinate to

treat. The rheumatic specifics, salicylic acid and its derivatives, proved of little value, save in a limited number of cases, as did the alkaline treatment. I found after having pushed the salicylates for three or four days without relief, that they were very depressing and produced excessive diaphoresis, which was very annoying to the patient and attendants. The vegetable tonics and mineral acids—preferably sulphuric acid—with the compound ipecacuanha powder, would in nearly every case, where the other treatment failed, ameliorate the attack and cure the rheumatism.

In previous cases I have found the salicylate and bicarbonate of sodium in doses of ten grains each every two to four hours, act like a charm in acute rheumatism. Antipyrine for the relief of pain in these cases was of little value, but of paramount value for the hyperpyrexia when met with. In the various neuralgias, particularly migraine, either alone or combined with the bromide of potassium in doses of twelve grains each, it is a remedy of great value. In weak heart, I combine with it the tincture of digitalis and never experience any marked depression of that organ. Indeed *antipyrine* has proved so valuable a remedy that I seldom have occasion to use another analgesic. I like it better than antifebrin, which is less soluble and more disagreeable to take.

In the case of a woman, Mrs. R., under my care, who is suffering from locomotor ataxia with fulminating and girdling pains, and who cannot stand opium or morphia on account of an idiosyncrasy, and on whom phenacetine and antifebrin did no good, I succeeded in making her very comfortable by giving antipyrine in twelve grain doses, from one to three times a day. Although she has been taking it for the past six months, she does not require any more to relieve her than at first. I have suspended it for two weeks at a time, without any unpleasant manifestations on her part, but the pains were so annoying when other drugs were substituted for it that I was obliged to return to it again without her knowledge of the fact.

In miner's asthma, which is a spasmodic neurosis of the pneumogastric nerves, brought on by dust and other offending materials suspended in the air, which when inhaled irritate the sensitive nerve-endings of the bronchial mucous membrane, and which, if the exciting cause be kept up, will, in the majority of cases, lead to fibroid degeneration of the lungs and its train of symptoms—a disease very prevalent in this region—I find that large doses of iodide of potassium, when it can be borne, with the chloride of ammonium, say ten grains of the former and five grains of the

latter in the compound syrup of sarsaparilla, give decided and unmistakable relief, repeated every three or four hours. In very bad cases I give at the same time the tincture of nux vomica in ascending doses, which stimulates the respiration and tones up the nervous system. The fluid extract of grindelia robusta is of great value in this disease. Hypodermic injections of morphia and atropia in bad cases give prompt relief, but these should not be resorted to except in extreme cases and when other remedies fail. Chloral hydrate in thirty-grain doses gives speedy relief, but has a depressing after-effect. I have used the fluid extract of quebracho for the dyspnœa of this disease in doses of twenty to thirty minims, but with negative results. When given with the sulphate of morphia and dilute hydrocyanic acid, as recommended by Ellis and others, the dyspnœa was lessened, but I attribute the good effect produced to the other drugs. I have, however, seen it do good in emphysema of the lungs. I used a fluid extract of the drug prepared by Parke, Davis & Co.

Cholera morbus and *cholera infantum* were epidemic here last summer as usual, but more fatal, especially cholera infantum, of which at least one-third of the genuine cases under my observation succumbed, either directly or later on, from marasmus. Fully one-half of the fatal cases were in collapse or on the border-line when I first saw them. I got better results from minute doses of calomel with lacto-peptine to control vomiting and relieve the bowels of any irritant substances that may be retained therein, Dover's powder or paregoric cautiously given for pain and to check discharges, and salol and subnitrate of bismuth for their antiseptic, protective and astringent effects, than from any other mode of treatment. The bichloride of mercury treatment has not been very successful in my hands, though I have tried it very faithfully. I believe calomel to be a far better intestinal antiseptic, because it is far less soluble and stands a far better chance of getting to the diseased part of the small intestines before being absorbed.

The hygienic and dietetic treatment of this disease is quite as important as the medicinal, and should receive careful consideration. In this section of the country the seashore is quite out of the question; therefore I recommend the child to be sponged with cold water or whiskey and water two to four times a day and to be kept in the cool, fresh air as much as possible. I find this a very important factor in the successful treatment of the disease. The

diet should be carefully attended to. I have very faithfully tried different prepared foods and I must say I am not favorably impressed by any of them, many eminent physicians to the contrary notwithstanding. They seem to do good for a short time, but if continued they do not sufficiently nourish the child.

I stop all milk for the time being and give rice-water, which I have prepared in the following way : To a cupful of cold water I add a tablespoonful of rice and let it come slowly to a boil ; when the rice begins to crack I remove it from the range and strain it. To every cupful of this I add a teaspoonful of sweet cream and a little sugar-of-milk or brown sugar. I keep them on this until better, when I gradually go back to the former diet. In the meantime I see that the mother's milk is removed with the breast-pump three or four times a day to keep it from going dry.

The advantages of this diet are—(1) It will not curd on the stomach, is pleasant to take, and does not irritate the stomach or bowels ; (2) It is easily assimilated and is highly nutritious ; (3) You know just what you are giving and why you give it, all of which you are never so sure of when giving prepared foods.

During the stage of collapse I apply heat externally, mustard and lard or spice poultice to the abdomen, and give aromatic spirits of ammonium and brandy internally ; at the same time stop all other treatment.

Pneumonia, pleurisy, bronchitis, and tonsillitis have all been very prevalent in the past year, but as far as I know have not been very fatal. I find by looking over my notes that the death-rate of all, collectively, is less than two and a half per cent.

The treatment I adopt is that usually employed in these cases. Before leaving the subject, however, I must say that in all sthenic cases of pneumonia and pleurisy that I see during the congestive stage, when I can get the consent of the patient, I bleed freely. I take from twenty to thirty ounces of blood with the most gratifying results. It aborts the disease, gives the patient instant relief, and saves both time and life.

In addition to the ordinary remedies used in bronchitis, either acute or chronic, I find that counter-irritation over the chest and back does a great deal of good. I know of nothing that will do the same amount of good in subacute and chronic bronchitis as successive blistering with cantharides, first on the chest, then over each scapula in succession, or sprinkle flannel with turpentine and

keep constantly applied to the chest and between the scapulæ; it should be removed every three to four days; counter-irritants do more good in this disease than in any other that I know of.

Measles, scarlet fever, chickenpox, rōtheln, mumps, and diphtheria have all been endemic or epidemic, but very mild. I know of but few deaths from any of them.

Influenza.—So much has been said of the late pandemic of influenza, both in the medical and public press, and so little is known of its real origin, whether it be due to some peculiar state of the atmosphere, or sudden changes in barometric pressure causing depression of the nervous system, or whether it be miasmatic or bacterial. The microbe claimed to be found has not, so far as I can learn, been proven to be the cause of the disease; therefore I shall content myself by briefly describing the different phases the disease assumed under my observation. Last fall, about the middle of October, I was confronted with a great number of cases of catarrhal laryngitis, with a tendency to extend to the large bronchial tubes accompanied by an annoying, hacking cough and a slight mucous expectoration, finally becoming muco-purulent, which proved very obstinate to treat, with a tendency to become subacute. There was little or no fever in any of the cases, nor did the general constitution appear to be much affected. That these cases were influenza of a very mild type I have no doubt, because the greater part, if not the whole of them, escaped when the disease became epidemic. During the epidemic I observed at least four types of the diseases, (1) *catarrhal*; (2) *nervous or neuralgic*; (3) *rheumatic*; (4) *gastro-intestinal*.

The *catarrhal* type starts with dryness, tingling, a fulness of the mucous membrane of the nose; breathing through the nose becomes difficult and pain is felt in the head with more or less sneezing. The patient feels chilly, the eyes are red and watery, and the throat is sore; there is thirst and lassitude with a dry cough and hoarseness. As far as can be seen with the laryngoscope, the mucous membrane of the nose, throat, and trachea is inflamed, red, and swollen, with more or less pain. Fever rapidly rises to from 101° F. to 104° F. Shooting pains are felt in the back and extremities with a feeling of great debility, soon water begins to run from the nose and eyes, the cough becomes more moist with a slight discharge from throat and tubes. Scattered râles can be heard in the inter-scapular region which are at first

dry but become moist. At length as the disease declines and becomes less acute, the expectoration is muco-purulent.

The *neuralgic* type often accompanies the catarrhal, but in a great many instances no catarrhal trouble is present. The onset is quick, with rigor, followed by decided fever, 102° F. to 105° F., and severe pains with a feeling of being pounded over the whole body; an intense throbbing pain in the head which gives the impression that the whole vault of the cranium is being pushed apart. Indeed, the symptoms may be so severe and persistent as to imitate some grave local disease. It may be over in a few days or linger for three or four weeks with a tendency to relapse and causing great debility. The strong and robust are attacked as well as the weak.

The *rheumatic* type, like the neuralgic, may or may not be associated with the catarrhal. The joints become very painful and swollen. It flies from one joint to another. The ankle, shoulder, knee and wrist-joints are most usually affected, as well as the lumbar region. The scalp is sore and painful to the touch; there is free sweating with a distinct acid reaction and odor.

As far as I know, the disease assumes this form only where the rheumatic diathesis exists.

In the *gastro-intestinal* type there may be very little bronchial irritation, the catarrh establishing itself here alone, but occasionally we have associated with it hepatic congestion with intense pain over that region.

The prognosis is good; it is seldom followed by death except in those broken down by previous debility or in the very old or very young.

Treatment.—The patient should be confined to bed until all traces of fever have passed away, by so doing the disease is not only shortened in its course, but the liability to pneumonia and other complications is lessened, if not averted. The diet should be very light for the first few days, especially if the stomach is irritable. The majority of cases will get well without any farther treatment, but cases that receive careful medical attention suffer less, recover much quicker, regain their former health in far shorter time and are less liable to relapses or complications.

For the relief of pain, restlessness, and fever, antipyrine with the bromide of potassium acts well. If pain is very severe, opium in small doses frequently repeated is indicated. In a limited

number of cases it may be necessary to give morphia hypodermically. Quinine in capsules is indicated, but if it aggravates the head trouble it must be discontinued. For the catarrh of the throat and tubes, inhalations of menthol in hot steam give prompt relief. If the catarrh is very severe, it may be necessary to give the chloride or carbonate of ammonium, combined with a sedative expectorant.

For the *rheumatic* variety I get good results from salol and sodium salicylate. It yields readily to treatment.

The *gastro-intestinal* must be treated on general principles, by carefully regulating the diet and giving the subnitrate of bismuth with opium; the majority of cases will yield kindly to the treatment. During convalescence I use the sulphate of strychnia, mineral acids, and alcoholic stimulants.

Before closing this paper I will say few words on the treatment of a very common sequela of "la grippe," which is *acute otitis*.

In the congestive stage blisters applied over the mastoid and in front of the aural cavity, with two or three drops of a solution of morphia, glycerin and water to relieve the pain, usually cure the case in a short time without suppuration. If the disease goes on to the suppurative stage, or has reached it before seeing the case, favor the free escape of the pus by keeping the meatus auditorius externus well cleaned out with absorbent cotton. This should be done as often as needed, after which the meatus should be loosely packed with absorbent cotton that has had very finely powdered boric acid thoroughly mixed through it. In this way the discharge is soaked up by the cotton and you get the antiseptic effect of the boric acid without subjecting the patient to risk of inflammation of the mastoid cells, as has been claimed by some by the too free use of this powder when blown into the ear.

All my cases have yielded to the above treatment in a very short time. I cheerfully recommend it to all, as it is and can be used without fear by any general practitioner.

WASHINGTON COUNTY.

THE Committee regrets that it does not possess the amount of data from different points throughout the county to make an instructive and intelligent report.

There seems to be an unaccountable lack of interest manifested by the profession in helping to make a good report. Although timely notice was given by the Committee to each member of the County Society for aid, but two or three responded.

The meagreness of the report is due to this lack of interest and to the limited knowledge of the health of the people possessed by the reporters.

Washington County is situated in the most western part of Pennsylvania, bounded by the counties of Greene, Fayette, Allegheny, and the Pan-handle portion of West Virginia.

For richness of soil, quality of bituminous coal, purity and abundance of natural gas, the steadily flowing and constant pumping oil-wells, her people's pride of rearing blooded stock, and last, but not least, the interest manifested by her physicians, to make each meeting of the County Medical Society interesting and instructive, she cannot be surpassed by any of her neighboring counties or adjacent States.

The Society has upon its roll fifty-four active members. The officers for the year ending May 13, 1890, were: President, Q. C. Farquhar; Vice-President, W. H. Alexander; Treasurer, W. R. Thompson; Secretary, J. A. McKean.

For the present year the Society honored Dr. Thomas McKennan, one of her oldest and most highly esteemed members to preside, with W. V. Riddle as vice-president; the treasurer and the secretary were reëlected.

Lectures, by invitation, from the following named gentlemen have added greatly to the interests of the Society meetings during the past year. W. F. Waugh, M.D., Philadelphia, subject, "Pneumonia;" James McCann, M.D., Pittsburg, subject, "Hernias;"

J. B. Murdoch, M.D., Pittsburg, subject, "Resection of Knee-joint;" E. A. Wood, M.D., Pittsburg, subject, "Dietary;" Samuel J. Ayres, M.D., Pittsburg, subject, "Insanity."

Many able papers were read and important cases reported by members of the Society during the year. Dr. Q. C. Farquhar reported a case of ovarian dropsy that had been tapped ninety-four times. Dr. W. D. Teagarden reported a case of periclonitis of a woman, forty-two years of age, the mother of three children; recovery in six weeks. Dr. W. W. Sprowl exhibited the kidney of an old lady who died at the almshouse, which was perfectly and entirely calcified.

The year past, as no doubt any physician in the county will testify, has been a busy one. While we have had no very fatal epidemics, we have had some unusual sickness, and in some sections of the county more than the usual number of deaths. We find the statement particularly true about the larger towns and where the oil and gas excitement prevailed. The occupancy of new and unfinished houses, the opening up of new streets, together with the unprecedented rainfall, have probably been the productive causes of an increased amount of sickness during the past year.

There has been a positive tendency to puerperal septicæmia, not of an epidemic character, but undoubtedly a greater number of cases have occurred than during any previous year.

All of our physicians have probably observed that some of their obstetrical cases (and with several physicians a number of cases), have been very slow in recovery and have given them much trouble. Our physicians are usually careful, and use aseptic and antiseptic precautions, and yet a number of fatal cases of septicæmia have occurred.

There have been also during the year, not confined to any particular locality, quite a number of cases of diphtheria, many of them fatal. The same may be said of typhoid fever.

During the year one or two epidemics occurred of scarlet fever, whooping-cough, and measles. These have all been cases practically mild, and few deaths have resulted therefrom.

About the last of September or the first of October, 1889, "la grippe" made its appearance and gradually increased till an extensive epidemic was the result.

About the last of March the epidemic of influenza began to abate, and by the first of April there were but few cases.

The catarrhal form of this epidemic influenza was the exception, the greater number of the cases partaking of the neuralgic form. In forty-eight hours under proper treatment the severe symptoms rapidly yielded, but left the patient greatly prostrated. No relapses are reported where the patient remained in bed for several days after the urgent symptoms had abated. We find the greatest number of deaths from this disease among asthmatics and extremely old persons.

IN MEMORIAM: HARRY S. MCKENNAN.

The members of Washington County Medical Society are called to mourn the loss, by death, of one of their most active and honored associates, Dr. Harry S. McKennan, of Washington, Pa.

About noon, January 9, 1889, the sad intelligence that Dr. McKennan had been found in his office in a narcotized condition, spread rapidly throughout the community, and many and beseeching were the anxious inquiries made during the day and early night as to his condition, and the prospects of recovery. Notwithstanding the most strenuous efforts were made by his friends and professional brothers for his restoration, all proved of no avail; the deadly carburetted hydrogen inhaled during the slumbers of the night previous had done its deadly work, and he passed away between 9 and 10 o'clock P. M. Dr. McKennan was born in October, 1849, at Washington, Pa., where his boyhood days were spent, and where he received his preliminary training in the public schools of the place, and in Washington and Jefferson College. After spending about two years in Iowa, he returned to Washington and began the study of medicine under the care of his uncle Dr. Thomas McKennan, graduating from the University of Pennsylvania in the spring of 1874. Having spent one year at the Western Pennsylvania Hospital, he returned to Washington, where he located and continued in the active practice of his profession until his sudden and untimely death.

Dr. McKennan possessed a strongly marked, positive, quick, and incisive mind, and no one associated with him was ever left long in doubt as to what his convictions were.

His quickness of perception, accuracy of diagnosis, and skill in surgery, rendered his services most valuable to his many professional associates who had occasion to seek his aid.

Though frank, almost blunt in his expression of opinion, he was always courteous. He possessed in an eminent degree the social qualities that always rendered him a delightful companion and a welcome guest, wherever he went. His patients were much devoted to him, almost invariably depending upon his sound judgment and skill, and faithfully obeying his instructions.

CHARLES F. N. FARQUHAR.

It is again the sad duty of your Committee to report the loss, by death, of one of the members of our County Society, Dr. Charles F. N. Farquhar, of

Bentleysville, Washington County, Pa., who died of typhoid fever, October 6, 1889.

Dr. Farquhar was born near Bentleysville, Pa., December 11, 1859, and grew to manhood in the same neighborhood, where he was a congenial companion and a general favorite. He studied medicine with his brother, Dr. Q. C. Farquhar, of East Bethlehem, Pa., and was graduated from the medical department of the University of Pennsylvania at Philadelphia, in 1884. He immediately thereafter located for a short time in Monongahela City, Pa., removing from there to East Bethlehem, where he practised his profession until June, 1889, when he removed to Bentleysville, Pa., where, after a short residence he was attacked with typhoid fever, to which he succumbed as already stated.

To the practice of his profession he was devotedly attached, and developed rare qualifications of fitness for its duties; with a mind richly stored with medical lore, an apt diagnostician, cool of nerve and gentle of disposition, he was peculiarly adapted for his chosen profession and endeared himself to his patrons, as evinced by the deep gloom that has spread like a pall over a community of friends and acquaintances who knew him best.

Respectfully submitted,

S. A. LACOCK,

J. Y. SCOTT,

CHARLES CAMPBELL.

YORK COUNTY.

It is with particular pleasure and satisfaction that we report our Society in a prosperous condition. After a year or more of heated discussion over a question of medical ethics, causing confusion and marring the peace of our Society, we are happy to say that we have emerged into the sunshine of peace and harmonious work. While the result of the above state of affairs has depleted our roll of membership to some degree, our *esprit de corps* has been vastly improved. A new life has been infused into our body, harmony prevails at our meetings, and each member seems to vie with every other one to manifest that mutual regard without which no Society can do its best work. Out of our differences, culminating finally in an attempt to wreck and completely destroy the old association, have come order, peace, and increased zeal, on the one hand, and a new order or society to whom we wish nothing but a good and a useful career.

Practically or clinically we incline to conservatism, though by no means ignorant of or indifferent to the rapid and great strides continually developing in our profession. While we jealously guard and cling to that which has withstood the crucial test of experience and given us a safe landmark to go by, we are ever on the alert to cull what promises to add to our effectiveness in combating disease, and to incorporate it in our clinical creed.

During the two years since our last report to the State Society we have had no special visitations of disease in our community apart from an epidemic of a periodic fever prevailing during the summer months of 1888 in our city. The character of the disease was that of a remittent fever, complicated in some cases with a typhoidal state, presenting that condition in which it required nice discrimination to decide as to whether we had before us a typho-malarial or malarial-typhoid fever. Our younger adult population contributed the largest number of cases, among whom the mortality was also largest. The antiperiodic (quinine) treatment yielded the best results.

Besides a number of interesting cases and subjects for discussion

brought before the Society at its meetings, we give below a list of some of the papers, by title, that were read during the year.

Dr. Herbert Harlan, "The Use of Eserine in the Treatment of Corneal Ulcers."

Dr. Dysinger, "Case of Pyæmia."

Dr. Miller, "Narcotic Poisoning."

Dr. E. L. Melsheimer, "Queer Notes on Quackery."

Dr. Frey, "The Epidemic Prevailing in York."

Dr. Frey, "Is Hydrophobia a Myth?"

Dr. Dysinger, "Use of Forceps in Labor."

Dr. Gottwald, "Case of Hæmatoid Tumor."

Dr. J. W. Kerr, "Case of Perforation of Bowel from Impacted Gall-stone."

Dr. J. W. Kerr, "Case of Hernia."

LEVI FREY,

WILLIAM S. ROLAND.

IN MEMORIAM: JAMES W. KERR, M.D., 1813-1889.

Dr. James W. Kerr, the subject of this memoir, a highly respected physician and surgeon, died at his residence in York, Pa., on Monday, June 10, 1889, in the seventy-sixth year of his age. Dr. Kerr was born in Lancaster County, and graduated from the Medical Department of the University of Pennsylvania in 1840. He was a prominent physician and surgeon, and steadily pursued his profession for nearly half a century. He was warmly regarded as a physician and citizen by all who knew him, and during the long time that he resided in the community he found ample opportunities to relieve the distressed, such opportunities as every high-minded physician rejoices to meet in the spirit of pure benevolence. And he met with his full share of tribute to his skill in the healing art, and many grateful men and women cherish profoundly the memory of the kind physician, the true citizen, and Christian man. Dr. Kerr was honorable in his intercourse with his professional brethren. He was attentive in the discharge of his duties to his patients, whether rich or poor, and had their respect and confidence. He was Superintendent of the Presbyterian Sabbath-school in York for nearly fifty years, and commanded the confidence and affection of all who were associated with him. He was a member of the National and State Medical Associations, and also served as an Assistant Surgeon in hospital duties during the late Civil War. He was a much-esteemed member of the York County Medical Society, and his fellow-members desire to express their sorrow, and to pay tribute to the worth and memory of their deceased brother, who, ripe for the harvest, has been garnered from his earthly field by

"That reaper whose name is Death,
And who, with sickle keen,
Reaps the bearded grain at a breath."

ALEXANDER R. BLAIR, M.D., 1826-1889.

Dr. A. R. Blair, a highly-esteemed physician, whose death we mourn, died at his residence in York, Pa., on Tuesday, July 16, 1889, in the sixty-third year of his age. Dr. Blair was born in Lancaster County, and graduated from Jefferson Medical College in 1853. He was an apt student, of a discriminating, intellectual mind, and possessed of a large mould of character. Nature endowed him with a fine physique and a vigorous constitution. He was a skilful and scientific practitioner in the healing art, and always ready to relieve suffering, in whatever form it came under his observation. He was strictly conscientious, generous, charitable, and sympathetic in all his dealings, and was beloved and esteemed in professional and social relationships. No member of the medical profession could be more averse to eulogies than Dr. Blair, yet the entire community bear witness to his many acts of friendship and kindness. But "it is appointed unto all men once to die." This solemn truth receives almost daily confirmation within the limited sphere of our personal acquaintance, and those whose mission it is to attend the bedside of the sick and dying, to administer to their wants, to alleviate distress, and save life, are not exempt themselves, but must bow to the will of the Almighty, and be carried to that last and longest resting-place in "the valley of the shadow of death."

Dr. Blair served in hospital duties as an active Assistant Surgeon in the U. S. Army from 1862 to 1865. He was a member of the State and National medical societies, also an honored member of the York County Medical Society, and his fellow-members offer this tribute of affection as a memorial of everlasting friendship. *Requiescat in pace.*

PRESIDENTS OF THE SOCIETY.

- *1848. SAMUEL HUMES, M.D., Lancaster County.
- *1849. SAMUEL JACKSON, M.D., Philadelphia County.
- *1850. WILMER WORTHINGTON, M.D., Chester County.
- *1851. CHARLES INNES, M.D., Northampton County.
- 1852. HIRAM CORSON, M.D., Montgomery County.
- *1853. JOHN P. HEISTER, M.D., Berks County.
- 1854. JACOB M. GEMMILL, M.D., Huntingdon County.
- *1855. JAMES S. CARPENTER, M.D., Schuylkill County.
- *1856. RENE LA ROCHE, M.D., Philadelphia County.
- *1857. JOHN L. ATLEE, M.D., Lancaster County.
- *1858. SMITH CUNNINGHAM, M.D., Beaver County.
- *1859. D. FRANCIS CONDIE, M.D., Philadelphia County.
- *1860-61. EDWARD WALLACE, M.D., Berks County.
- *1862. GEORGE F. HORTON, M.D., Bradford County.
- *1863. WILSON JEWELL, M.D., Philadelphia County.
- 1864. J. D. ROSS, M.D., Blair County.
- 1865. WILLIAM ANDERSON, M.D., Indiana County.
- *1866. JAMES KING, M.D., Allegheny County.
- 1867. TRAILL GREEN, M. D., Northampton County.
- 1868. JOHN CURWEN, M.D., Dauphin County.
- *1869. WM. M. WALLACE, M.D., Erie County.
- *1870. SAMUEL D. GROSS, M.D., Philadelphia County.
- *1871. J. S. CRAWFORD, M.D., Lycoming County.
- 1872. A. M. POLLOCK, M.D., Allegheny County.
- *1873. S. B. KIEFFER, M.D., Cumberland County.
- *1874. WASHINGTON L. ATLEE, M.D., Philadelphia County.
- 1875. CRAWFORD IRWIN, M.D., Blair County.

* Deceased.

1876. ROBERT B. MOWRY, M.D., Allegheny County.
1877. D. HAYES AGNEW, M.D., Philadelphia County.
1878. J. L. STEWART, M.D., Erie Country.
*1879. ANDREW NEBINGER, M.D., Philadelphia County.
1880. JOHN T. CARPENTER, M.D., Schuylkill County.
1881. JACOB L. ZIEGLER, M.D., Lancaster County.
1882. WILLIAM VARIAN, M.D., Crawford County.
*1883. HENRY H. SMITH, M.D., Philadelphia County.
1884. EZRA P. ALLEN, M.D., Bradford County.
1885. E. A. WOOD, M.D., Allegheny County.
1886. R. DAVIS, M.D., Luzerne County.
1887. RICHARD J. LEVIS, M.D., Philadelphia County.
1888-89. J. B. MURDOCH, M.D., Allegheny County.
1890. ALEXANDER CRAIG, M.D., Lancaster County.

* Deceased.

OFFICERS AND MEMBERS OF COUNTY SOCIETIES.

(A date in brackets signifies the date of membership in the State Society.)

ADAMS COUNTY.

OFFICERS.

President,	A. P. Beaver,	Fairfield.
Vice-Presidents,	R. B. Elderdice,	McKnightstown.
	O. W. Thomas,	Arendtsville.
Recording Secretary,	J. C. Felty,	Gettysburg.
Corresponding Secretary,	A. Noel,	Bonneauville.
Treasurer,	E. W. Mumma,	Bendersville.

MEMBERS.

Beaver, A. P., Fairchild [1884].	Mumma, E. W., Bendersville [1879].
Cashman, E. W., York Springs.	Noel A., Bonneauville [1883].
Elderdice, R. B., McKnightstown [1877].	O'Neal, J. W. C., Gettysburg [1876].
Felty, J. C., Gettysburg.	Pearson, J. W., York Springs.
Horner, Charles, Gettysburg [1875].	Seiss, R. S., Littlestown [1881].
Horner, Robert, Gettysburg [1875].	Thomas, O. W., Arendtsville [1880].

ALLEGHENY COUNTY.

OFFICERS.

President,	W. S. Foster,	Pittsburg.
Vice-Presidents,	W. E. Johnston,	Etna.
	C. S. Shaw,	Pittsburg.
Recording Secretary,	J. J. Buchanan,	"
Assistant Recording Secretary,	A. Pettit,	"
Corresponding Secretary,	T. D. Davis,	"
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MEMBERS.

Allison, R. W., Wilkinsburg.	Beatty, H. K., Allegheny.
Allyn, G. W., Pittsburg [1890].	Benham, Silas N., Pittsburg [1890].
Anderson, T. S., Chartiers.	Blumberg, A., Pittsburg [1890].
Arnholt, M. A., Pittsburg.	Blume, Frederick, Allegheny.
Asdale, W. J., Pittsburg [1868].	Brockhoff, J. M., Pittsburg [1890].
Ayres, Samuel, Pittsburg [1883].	Brown, N. W., Pittsburg [1890].
Barchfield, A. J., Pittsburg.	Buchanan, J. J., Pittsburg [1890].
Barclay, W. F., Pittsburg.	Burket, A. H., McKeesport.
Batten, J. M., Pittsburg [1876].	Burket, J. H., Remington.

- Burleigh, W. T., Pittsburg [1890].
 Burns, B., Allegheny.
 Cathcart, W. B., Pittsburg [1890].
 Chessrown, A. V., Pittsburg [1873].
 Christie, J. H., Allegheny [1880].
 Christy, T. C., Pittsburg [1878].
 Clark, H. H., Pittsburg.
 Clarke, S. D., Verona.
 Cole, W. W., Allegheny [1878].
 Connell, J. G., Pittsburg [1890].
 Crombie, J. B., Allegheny.
 Daggette, A. S., Pittsburg.
 Daly, W. H., Pittsburg [1871].
 Davis, John D., Allegheny.
 Davis, T. D., Pittsburg [1890].
 Davison, J. E., Unity Station [1890].
 Dickson, John S., Pittsburg [1890].
 Dickson, Joseph N., Pittsburg [1888].
 Duff, J. M., Pittsburg [1890].
 Dunaway, A. G., Pittsburg.
 Duncan, J. A., Pittsburg [1890].
 Dunn, J. C., Pittsburg [1875].
 Easton, A., Allegheny [1876].
 Edsall, F. H., Pittsburg.
 Emmerling, Charles, Pittsburg [1878].
 Evans, T. R., Pittsburg.
 Faulkner, R. B., Allegheny.
 Fife, T. M., Bennett.
 Fleming, A., Pittsburg [1878].
 Foster, D. G., Crafton.
 Foster, W. R., Crafton.
 Foster, W. S., Pittsburg [1868].
 Fundenburg, W. F., Pittsburg.
 Gardiner, F. G., Pittsburg.
 Gentry, Alan F., Pittsburg.
 Gilliford, R. H., Allegheny [1880].
 Givens, A. J., Bennett.
 Golden, J. P., Allegheny.
 Goulding, C. O., Pittsburg.
 Graham, George G., Dixmont [1880].
 Green, J. J., Pittsburg [1890].
 Hagemann, J. A., Pittsburg.
 Hallock, W. E., Pittsburg [1884].
 Haworth, E. B., Pittsburg.
 Hechelmann, H. W., Allegheny [1890].
 Hengst, D. A., Pittsburg [1878].
 Heuser, A. E., Pittsburg.
 Heustis, J. W., Pittsburg.
 Hiett, G. W., Pittsburg.
 Hitzrot, H. W., McKeesport.
 Huselton, E. C., Allegheny [1890].
 Huselton, W. S., Allegheny [1870].
 Hutchinson, H. A., Dixmont [1890].
 Jackson, C. Q., Pittsburg.
 Jennings, S. D., Biers.
 Johnston, W. E., Etna [1890].
 Jones, M. O., Pittsburg [1890].
 Jones, W. W., Allegheny [1884].
 Kearns, W. D., Pittsburg [1885].
 Kelly, G. M., Sharpsburg.
 King, C. B., Allegheny [1876].
 Kirk, J. A., Carrick.
 Kirk, T. T., Pittsburg.
 Kirker, John, Allegheny.
 Knox, W. F., McKeesport [1867].
 Koeller, F., Pittsburg.
 Koenig, Adolph, Pittsburg [1890].
 Lange, J. C., Pittsburg [1883].
 Lee, J. M., Pittsburg.
 Legge, J. H., Pittsburg.
 Le Moyne, Frank, Pittsburg [1878].
 Lincoln, M. H., Natrona [1890].
 Lippincott, J. A., Pittsburg [1882].
 Mabon, J. S., Allegheny [1890].
 Mabon, Thomas, Allegheny [1869].
 Macfarlane, J. W., Pittsburg [1890].
 Marshall, W. N., Hoboken.
 Matlack, F. H., Turtle Creek.
 Matson, E. G., Pittsburg.
 Mercur, W. H., Pittsburg.
 Miller, F. C., Pittsburg.
 Miller, O. L., Allegheny [1867].
 Miller, W. N., Pittsburg.
 Morrison R., Oakdale Station.
 Mowry, R. B., Allegheny [1865].
 Mundorff, E. A., Pittsburg.
 Munn, W. P., Allegheny [1890].
 Murdoch, J. B., Pittsburg [1876].
 McCann, James, Pittsburg [1867].
 McCarrell, J., Allegheny [1878].
 McCarrell, J. R., Allegheny.
 McCord, G. T., Pittsburg.
 McCord, J. P., Pittsburg.
 McCormick, J. C., Pittsburg.
 McCready, J. A., Pittsburg.
 McCready, R. J., Allegheny.
 McCullough, W. H., Tarentum.
 McGough, Peter, Pittsburg.
 McGrew, F. R., Mansfield Valley.
 McGrew, J. B., Pittsburg.
 McGrew, R. L., Allegheny.
 McKee, J. O., McKeesport.
 McKelvey, W. H., Pittsburg.
 McKennan, T. M. T., Pittsburg [1890].
 McMullen, J. C., Allegheny.
 McNeil, G. W., Pittsburg [1890].
 McQuiston, J. C., Pittsburg.
 Neely, J. W., Pittsburg [1879].
 O'Brien, W. D., Pittsburg.
 Painter, E. T., Pittsburg [1890].
 Patterson, Stuart, Pittsburg.
 Patterson, T. J., Pittsburg.
 Pershing, F. S., Wilkinsburg.
 Pettit, A., Pittsburg [1890].
 Phillipps, J. S., Allegheny.

Pollock, A. M., Pittsburg [1871].	Stevenson, J. M., Pittsburg [1890].
Porter, John, McKeesport.	Stewart, R. W., Pittsburg [1890].
Rahauser, G. G., Pittsburg [1886].	Stewart, S. S., Allegheny.
Rankin, D. N., Allegheny [1867].	Stewart, W. S., Braddock.
Rex, T. A., Pittsburg.	Taylor, W. V. M., McKeesport.
Rigg, J. E., Wilkinsburg.	Thomas, J. D., Pittsburg [1872].
Riggs, D. W., Allegheny.	Thorne, J. M., McKeesport.
Riggs, E. S., Allegheny [1876].	Treacy, J. P., Pittsburg.
Riggs, W. J., Allegheny.	Van Kirk, T. R., McKeesport [1870].
Ritchey, J. B., Allegheny.	Vincent, J. R., Wilkinsburg.
Robeson, W. F., Pittsburg.	Voigt, C. H., Allegheny.
Robinson, T. C., Turtle Creek.	Wade, F. H., Allegheny.
Robison, G. R. B., Sharpsburgh.	Walker, R. L., Mansfield Valley
Ryall, T. M., Pittsburg.	[1870].
Schooley, A. W., Braddock.	Walker, W. E., McKeesport.
Schulze, H. L., Surgeon's Hall, P. O.	Wallace, W. C., Bonney.
Semple, J., Wilkinsburg.	Ward, M. R., Pittsburg.
Shaw, C. S., Pittsburg [1890].	Werder, X. O., Pittsburg.
Shaw, T. W., Pittsburg [1866].	White, T. L., McKeesport.
Shaw, W. C., Pittsburg [1884].	Wiggins, S. L., McKeesport.
Shillito, G. M., Allegheny [1890].	Williams, Roger, Pittsburg [1890].
Small, E. H., Pittsburg.	Williamson, J. H., Allegheny.
Snively, W., Pittsburg [1878].	Wilson, J. E., Pittsburg.
Speer, A. M., Pittsburg.	Wishart, J. W., Pittsburg.
Srodes, J. L., Wilkinsburg.	Wood, E. A., Pittsburg [1867].
Staub, F. N., Pittsburg.	Wright, J. H., Allegheny.
Sterrett, J. P., Pittsburg [1884].	

ARMSTRONG COUNTY.

OFFICERS.

President,	J. A. Armstrong,	Leechburg.
Vice-President,	C. J. Jessop,	Kittanning.
Corresponding Secretary,	T. M. Allison,	Kittanning.
Recording Secretary,	W. H. Stewart,	"
Treasurer,	J. T. Deemer,	Manorville.

MEMBERS.

Allison, T. H., Kittanning [1880].	McBryar, W., Apollo [1890].
Allison, T. M., Kittanning [1876].	McBryar, W. L., Apollo.
Ansley, W. B., Saltsburg.	McCauley, R. E., Apollo.
Armstrong, J. A., Leechburg.	McCulloch, J. T., Freeport [1882].
Beatty, R. C., Spring Church [1890].	McCurdy, R. L., Freeport [1883].
Cunningham, J. G., Kittanning [1881].	McKee, J. C., Slate Lick.
Deemer, J. T., Manorville.	Moorhead, R. C., Brattonville [1890].
Henry, J. T., Apollo.	Orr, J. D., Leechburg.
Hilman, U. O., Leechburg.	Patton, J. M., Kelly's Station.
Hunter, R. P., Leechburg [1890].	Ralston, R. G., Cowansville [1882].
Jessop, Charles J., Kittanning [1890].	Stewart, W. H., Kittanning [1878].
Jessop, S. A. S., Kittanning [1882].	Stone, H. B., Kittanning.
Kealor, R. S., McVile.	Walker, R. A., Manorville.
Leech, W. W., Apollo.	Wyant, J. B. F., Templeton.
Maxwell, J. K., Worthington [1880].	

BEAVER COUNTY.

OFFICERS.

President,	H. M. Shallenberger,	Rochester.
Vice-President,	S. S. Kring,	Beaver Falls.
Secretary,	R. R. Mitchell,	Rochester.
Treasurer,	T. P. Simpson,	Beaver Falls.

MEMBERS.

Aque, John B., Beaver Falls.	Moon, A. S., Beaver Falls.
Boal, G. Y., Baden [1876].	McCarter, J. D., Beaver Falls [1884].
Coffin, J. W., Beaver Falls.	McConnell, H. S., New Brighton
Craig, S. A., Freedom [1879].	[1878].
Gale, C. T., New Brighton.	Shallenberger, H. M., Rochester.
Grim, W. H., Beaver Falls.	Simpson, T. P., Beaver Falls [1888].
Grim, W. S., Beaver Falls [1890].	Simpson, W. C., New Brighton.
Kring, S. S., Beaver Falls [1890].	Strouss, W. S., Beaver.
Langfitt, W. J., Allegheny City (Alle-	Vance, B. A., Darlington.
gheny County) [1864].	White, J. K., New Brighton [1884].
Marquis, D. S., Rochester [1863].	Wickham, John J., Rochester.
Mitchell, R. R., Rochester [1890].	Wilson, J. H., Beaver.

BEDFORD COUNTY.

OFFICERS.

President,	S. H. Gump,	Bedford.
Vice-President,	G. Statler,	Alum Bank.
Recording Secretary,	J. L. Marbourg,	Bedford.
Treasurer,	C. P. Calhoun,	"

MEMBERS.

Calhoun, C. P., Bedford.	Homes, H. C., Clearville.
Conrad, H. W., Osterburg.	Hughes, J. G., Rainsburg.
Detwiler, M. H., Hopewell.	Hughes, W. T., Bedford [1886].
Doyle, C. F., Centreville.	Marbourg, F. B., Bedford.
Enfield, Americus, Bedford [1884].	Marbourg, J. L., Bedford [1887].
Griffith, H. M., New Enterprise.	Miller, W. C., Everett.
Gump, S. H., Bedford [1886].	Plank, D. A., St. Clairsville [1887].
Hamaker, W. D., Meadville [1890].	Statler, S. G., Alum Bank [1887].
Henry, W. P. S., Everett [1886].	Wengard, J. H., Pavia.
Hedrick, D. L., Alum Bank.	Whitmore, W. P., Schellsburg [1886].
Hill, H. Howard, Everett [1884].	

BERKS COUNTY.

OFFICERS.

President,	S. L. Kurtz,	Reading.
Vice-Presidents,	J. W. Keiser,	"
	W. B. Kupp,	Gibraltar.
Recording Secretary,	C. W. Bachman,	Reading.
Corresponding Secretary,	H. S. Reeser,	"
Treasurer,	J. B. Sterley,	"

MEMBERS.

Bachman, C. W., Reading [1884].	Kupp, W. B., Gibraltar [1887].
Beaver, D. B. D., Reading [1890].	Kurtz, Clarence, Reading.
Becker, John N., Reading.	Kurtz, J. Ellis, Reading [1881].
Bertolette, M. L. Jacksonville.	Kurtz, S. L., Reading.
Beyerle, W. George, Bernville.	Lincoln, James, Birdsboro.
Bickel, George H., Rehrersburg [1886].	Loose, C. G., Reading [1890].
Bollman, H. L., Bernville.	Luther, Martin, Reading.
Brobst, Edward, Leesport.	Mathews, James M., Temple.
Brobst, J. A., Bernville [1887].	Muhlenburg, W. F., Reading [1875].
Brooke, J. B., Reading [1877].	Nagle, H. M., Reading.
Brusstar, H. B., Birdsboro.	Raudenbush, A. S., Reading [1874].
Cleaver, Israel, Reading [1873].	Reeser, H. S., Reading.
De Long, Wilson D., Pikeville.	Rhoads, M. A., Reading [1888].
Dundor, A. B., Reading [1872].	Schlem, H. E., Reading.
Ermentrout, S. C., Reading [1890].	Schulze, R. B., Reading [1884].
Feick, J. F., Strausstown.	Seamen, J. K., Lenhartsville.
Francis, S. K., Boyerstown.	Shearer, James Y., Sinking Springs
Frankhauser, F. W., Reading [1888].	[1868].
Fritch, Milton L., Virginsville.	Stamm, A., Mohnsville.
Hepler, H. A., Reading.	Sterley, J. B., Reading [1884].
Hoffman, J. Y., Reading [1890].	Trexler, J. S., Kutztown.
Hunsberger, Wm. E., Maiden Creek	Weber, Charles, Pricetown.
[1883].	Weidman, W. M., Reading [1868].
Keiser, James W., Reading.	Wenger, M. L., Reading.
Kendig, Elizabeth, Reading.	Wuelfingle, W. A. M., Reading

BLAIR COUNTY.

OFFICERS.

President,	G. F. Arney,	Altoona.
Vice-Presidents,	G. W. Smith,	Hollidaysburg.
	W. H. Morrow,	Bellwood.
Secretary,	C. H. Closson,	Altoona.
Treasurer,	S. M. Ross,	" "

MEMBERS.

Arney, G. F., Altoona.	Gemmill, J. M., Jr., Tyrone [1874].
Arnold, J. F., Williamsburg.	Haberacker, E. O. M., Altoona.
Black, M. F., Newry.	Havice, H. S., Mines.
Bloom, H. C., Martinsburg [1879].	Hogue, J. C., Altoona.
Bonebreak, D. W., Martinsburg	Irwin, Crawford, Hollidaysburg [1867].
[1866].	Irwin, R. C., Hollidaysburg [1883].
Brotherlin, H. Hale, Hollidaysburg.	Jacob, Harry, Altoona [1880].
Brown, J. M., Derry (Westmoreland)	Johnston, J. W., Claysburg.
[1887].	Levengood, W. Y., Bellwood [1887].
Burket, G. W., Tyrone.	Lindsay, J. M., Claysburg.
Christy, R. W., Elizabeth Furnaces	Miller, E. S., Altoona.
[1880].	Roller, W. C. Hollidaysburg.
Clarke, Rowan, Tyrone [1864].	Ross, John D., Williamsburg [1863].
Closson, C. H., Altoona [1879].	Ross, S. M., Altoona [1864].
Confer, D. C., Duncansville.	Ross, W. S., Altoona [1883].
Crosthwaite, D. W., Altoona [1884].	Sheedy, J. M., Altoona.
Fay, John, Altoona [1870].	Smith, G. W., Hollidaysburg [1866].
Feltwell, A. L., Altoona.	Smith, H. R., Altoona.
Feltwell, John, Altoona.	Smith, Jas. E., Altoona.
Findley, Wm. M., Altoona [1870].	Smith, Jas. M., Tyrone [1872].
Geisinger, S. D., Williamsburg [1887].	Spanogle, A. S., Altoona [1887].

BRADFORD COUNTY.

OFFICERS.

President,	C. L. Stevens,	Athens.
Vice-Presidents,	E. D. Payne,	Towanda.
	V. Homet,	Wyalusing.
Secretary,	S. F. Colt,	Wysox.
Treasurer,	D. N. Newton,	Towanda.

MEMBERS.

Barker, P. N., Troy [1888].	Newton, F. G., Towanda [1884].
Blackwell, C. H., Granville, Centre.	Payne, E. D., Towanda [1885].
Blair, A. S., Ulster.	Reed, Chas., Wysox [1886].
Byron, L., Barclay.	Rockwell, O. H., Monroeton.
Chaffee, F., Forksville (Sullivan Co.).	Schoonmaker, I. R., Sayre. *
Clagget, W. L., Rummerfield [1882].	Stephens, F. M., Sayre.
Colt, S. F., Wysox.	Stevens, C. L., Athens [1888].
Everett, J. E., Franklindale.	Sturdevant, D. W., Laceyville, Wy-
Haines, C. A., Le Roy.	oming County [1890].
Hammond, C. N., Bentley Creek.	Taylor, Geo. B., Barclay.
Harshburger, D. W., New Albany.	Thompson, F. A., Durell Centre [1890].
Harshburger, F. W., New Albany.	Tracy, E. G., Troy.
Holcomb, G. C., Ulster.	Tracy, G. P., Monroeton.
Homet, Volney, Wyalusing [1870].	VerBryck, G. G., Meshoppen (Wyo-
Johnson, T. B., Towanda [1885].	ming).
Ladd, C. K., Towanda.	Waddell, W., Dushore (Sullivan Co.).
Lyman, J. W., Towanda [1884].	Woodburn, S. M., Towanda [1884].
Newton, D. N., Towanda [1874].	

BUCKS COUNTY.

OFFICERS.

President,	J. N. Richards,	Fallsington.
Vice-Presidents,	M. B. Dill,	Doylestown.
	N. S. Nonamaker,	Bedminster.
Secretary,	Wm. E. Doughty,	Hartsville.
Treasurer,	Frank Swartzlander,	Doylestown.

MEMBERS.

Adams, Q. L., Pineville [1890].	Groff, Jas. E., Doylestown.
Allen, Thos. L., Langhorne.	Hancock, E. C., Yardleyville [1888].
Cooper, A. M., Point Pleasant [1881].	Hellyer, H. E., Penn's Park.
Cooper, Wm. R., Point Pleasant [1888].	Herbine, M. H., Applebachville.
Crewitt, J. A., Newtown.	Kirk, Wm. H., Doylestown [1884].
Dill, M. B., Doylestown.	Kratz, Harvey, New Britain [1879].
Doughty, Wm. E., Hartsville [1881].	Krause, J. H., Plumsteadville.
Foulke, Jos., Buckingham.	Matthews, A. J., Chalfont [1888].
Foulke, R. C., New Hope.	Moyer, J. S., Quakertown.
Fretz, C. D., Sellersville.	Myers, A. F., Blooming Glen.
Fretz, J. H., Hagersville [1888].	Nonamaker, Noah S., Bedminster.
Fretz, O. H., Quakertown [1888].	Osbourne, R. H. G., Morrisville.
	Parker, G. A., Southamptonville.

Parry, George R., New Hope.	Thomas, Joseph, Quakertown.
Pursell, Howard, Bristol.	Walter, Jos. B., Solebury [1874].
Rice, N. S., Durham.	Ward, John, Bristol.
Richards, J. N., Fallsington [1883].	Wilson, A. S., Bristol.
Ritter, H. W. Perkasio.	Wilson, S. H., Buckingham [1884].
Swartzlander, F. Doylestown [1883].	Winder, Wm. G., Andalusia.

BUTLER COUNTY.

OFFICERS.

President,	N. M. Hoover,	Butler.
Vice-President,	W. R. Cowden,	Jacksville.
Secretary and Treasurer,	S. D. Bell,	Butler.

MEMBERS.

Barr, J. C., Mars [1890].	Headland, M. E., Butler.
Bell, S. D., Butler [1876].	Hockenberry, H., Coultersville.
Bippus, S. M., Butler [1890].	Irvine, Wm., Evans City.
Black, L., Butler.	Logan, E. P., Saxonburg [1890].
Brooks, Floyd V., Evans City [1883].	Lusk, A., Zelienople [1878].
Burchard, H. C., Baldwin.	McCafferty, W. H., Sarvers Station.
Byers, J. E., Butler.	McClymonds, H. S., Brownsdale.
Christie, J. L., Conoquennessing, [1880].	Moore, J. F., Butler [1890].
Cort, J. C., Renfrew.	Neyman, A. M., Butler [1867].
Cowden, Wm. R., Jacksville.	Pillow, R. H., Butler [1878].
Cullinan, M. P., Petrolia.	Redmond, R. E., Harmony.
De Wolf, W. L., Barnhart's Mills [1884].	Showalter, J. B., Barnhart's Mills [1888].
Graham, Samuel L., Butler [1875].	Sterret, S. O., Valencia.

CAMBRIA COUNTY.

OFFICERS.

President,	J. C. Sheridan,	Johnstown.
Vice-Presidents,	J. Stricker,	Portage.
	E. L. Miller,	Johnstown.
Secretary,	J. W. Hamer,	Johnstown.
Treasurer,	F. Schill,	"

MEMBERS.

Blaisdell, I. C., Wilmore.	Marbourg, Esther L. W., Johnstown [1884].
Devereaux, Robt., Summit [1884].	Matthews, W. E., Johnstown.
Evans, D. W., Johnstown [1887].	Mayer, L. H., Johnstown.
George, W. J., Johnstown.	Miller, E. L., Johnstown.
Hamer, J. W., Johnstown [1890].	Overdorff, F. T., Johnstown.
Jones, F. C., Ebensburg [1890].	Schill, F., Johnstown [1886].
Kennedy, C. V. B., Ebensburg.	Sheridan C., Johnstown.
Lowman, John, Johnstown.	Sheridan, John C., Johnstown [1883].
Lowman, W. B., Johnstown [1883].	Stricker, Julius, Portage [1885].
Luke, J. C., South Fork.	

310 OFFICERS AND MEMBERS OF COUNTY SOCIETIES.

Swan, S. M., Johnstown [1887].	Wagoner, G. W., Johnstown [1890].
Tomb, B. F., Morrellsville.	Wakefield, A. N., Johnstown [1887].
Tomb, H. F., Johnstown.	Wakefield, J. C., Vinco.
Troxell, T. S., Gallitzin [1890].	Walters, W. W., Johnstown [1890].

CARBON COUNTY.

OFFICERS.

President,	W. L. Kutz,	Weissport.
Vice-President,	C. L. Allen,	Beaver Meadow.
Secretary and Treasurer,	J. A. Horn,	Mauch Chunk.

MEMBERS.

Allen, C. L., Beaver Meadow [1886].	Latham, P. H., Weatherly.
Denlinger, A. F., Lansford [1885].	Long, W. P., Weatherly.
Derhamer, W. A., Lehighton.	Longshore, W. R., Hazleton [1884].
Donnelly, M. J., Summit Hill [1883].	Moyer, L. W., East Mauch Chunk.
Hoffman, C. J., Morea [1884].	Reber, W. R., Lehighton.
Horn, C. T., Lehighton [1884].	Leiple, W. G. M., Lehighton.
Horn, J. A., Mauch Chunk [1888].	Smith, L. H., Hazleton.
Keiser, P. D., Mahoning.	Thompson, W. O., Summit Hill.
Kistler, E. H., Lansford.	Tweedle, J. B., Weatherly [1882].
Kramer, J. C., Aquachicola.	Zern, J. G., Weissport.
Kutz, W. L., Weissport [1884].	

CENTRE COUNTY.

OFFICERS.

President,	Thomas Tobin,	Stormstown.
Vice-Presidents,	G. S. Frank,	Millheim.
	R. G. H. Hayes,	Bellefonte.
Secretary and Treasurer,	C. Sumner Musser,	Aaronsburg.

MEMBERS.

Alexander, J. F., Centre Hall [1881].	Jacobs, W. A., Centre Hall [1886].
Allport, Hobart, Philipsburg [1884].	Lytle, S. F., Phillipsburg [1876].
Bright, J. W., Rebersburg [1886].	Musser, C. S., Aaronsburg [1881].
Dale, J. W., Lement [1877].	Musser, P. T., Aaronsburg [1878].
Dorworth, E. S., Bellefonte [1880].	Russell, E. A., Unionville [1883].
Fisher, P. S., Zion [1882].	Seibert, J. L., Bellefonte [1887].
Frank, George S., Millheim [1888].	Thompson, James A., Snowshoe [1880].
Hale, E. W., Bellefonte [1887].	Tobin, Thomas, Stormstown, [1883].
Harris, G. F., Bellefonte [1878].	Van Valzah, F. H., Spring Mills [1881].
Harshberger, S. U., Port Matilda.	Woods, George H., Pine Grove Mills
Hayes, R. G. H., Bellefonte [1886].	[1887].
Hayes, Thomas R., Bellefonte [1877].	Woods, J. F., Boalsburg [1876].
Hibler, August, Bellefonte [1876].	

CHESTER COUNTY.

OFFICERS.

President,	J. K. Evans,	Malvern.
Vice-Presidents,	T. D. Dunn,	West Chester.
	E. Patrick,	"
Secretary,	P. C. Hoskins,	"
Treasurer,	Charles E. Woodward,	"

MEMBERS.

Aitkins, Henry M., West Chester.	McClurg, John R., West Chester.
Carey, Robert B., Glenloch [1883].	Mosteller, W. H., Phoenixville.
Cheyney, Mary H., West Chester.	Parke, Thos. E., Downingtown [1888].
Downing, Henry W., White Horse.	Patrick, Elwood, West Chester.
Dunn, T. D., West Chester [1883].	Perdue, Wm. R., Unionville [1881].
Emack, F., Phoenixville.	Price, J., West Chester [1864].
Evans, J. D., Malvern.	Sharpless, W. P., West Chester.
Ewing, R. B., West Grove [1879].	Stubbs, J. H., London Grove [1879].
Fulton, James, New London [1879].	Swing, E. V., Coatesville [1884].
Hopkins, E. Marshalton.	Treichler, C. Galen, Honeybrook
Hoskins, P. C., West Chester [1876].	[1881].
Linton, Frances, West Chester.	Woodward, Charles E., West Chester
Massey, I., West Chester [1882].	[1881].

CLARION COUNTY.

OFFICERS.

President,	J. Frank Ross,	Clarion.
Vice-President,	H. T. Reimsel,	Scotch Hill.
Secretary,	J. S. Shirley,	Clarion.
Treasurer,	J. T. Rimer,	Curlsville.

MEMBERS.

Brown, J. A., Curlsville.	Reimsel, H. T., Scotch Hill [1890].
Clover, W. M., Lamartine.	Rimer, J. T., Curlsville [1890].
Cresswell, John, New Bethlehem	Ross, J. F., Clarion [1870].
[1875].	Shirley, J. S., Clarion.
Fitzgerald, J. M., Clarion [1875].	Shoemaker, G. G., Knox.
Hess, H. N., Fryburg [1884].	Sigworth, F. P., Tylersburg.
Hilliard, G. H., Shippenville.	Spencer, G. W., Callensburg.
Meals, N. M., Callensburg [1878].	Summerville, J. F., Monroe [1890].
Mohney, A. M., Rimersburg.	Wiles, D. E., Rimersburg.
Myers, W. F., Knox.	Wireback, I. J., St. Petersburg
Nelson, J. M., Rimersburg.	[1882].
Phillips, B., Leeper.	Wood, G. H., New Bethlehem.
Reid, A. M., Clarion [1882].	

CLEARFIELD COUNTY.

OFFICERS.

President,	S. J. Miller,	Ansonville.
Vice-President,	T. J. Boyer,	Madiera.
Secretary and Treasurer,	H. B. Van Valzah,	Clearfield.

312 OFFICERS AND MEMBERS OF COUNTY SOCIETIES.

MEMBERS.

Baird, J. E., Houtzdale [1887].	Hogue, D. A., Houtzdale [1883].
Boyer, T. J., Madiera.	Jenkins, G. C., Curwensville.
Currier, J., Grampian Hills [1887].	Maxwell, J. A., Curwensville [1886].
Enrigh, G. W., Woodland [1886].	Miller, Ansonville.
Good, D. R., Osceola Mills.	Read, F. B., Osceola Mills [1888].
Hartswick, J. G., Clearfield [1885].	Stewart, S. C., Clearfield [1883].
Henderson, J. L., Osceola Mills [1886].	Van Valzah, H. B., Clearfield [1876].
	Whittier, M. G., Houtzdale.

CLINTON COUNTY.

OFFICERS.

President,	J. H. Hayes,	Lock Haven.
Vice-President,	J. A. Houtz,	Loganton.
Secretary,	W. J. Shoemaker,	Lock Haven.
Treasurer,	J. M. Dumm.	Mackeyville.

MEMBERS.

Armstrong, R., Lock Haven.	Mothersbaugh, H. H., Buck Creek.
Ball, F. P., Lock Haven [1888].	Shoemaker, W. J., Lock Haven [1888].
Beck, Jr., C. S., Renovo.	Tibbens, J. E., Beech Creek.
Canfield, J. C., Renovo.	Vandersloot, F. W., Lock Haven.
Dumm, J. M., Mackeyville.	Walls, A. G., Lock Haven.
Hayes, J. H., Lock Haven.	Watson, R. B., Lock Haven.
Houston, J. H., Clintondale.	Weymouth, H. C., Renovo.
Houtz, J. A., Loganton.	

COLUMBIA COUNTY.

OFFICERS.

President,	Pius Zimmerman,	Numidia.
Vice-Presidents,	J. C. Wintersteen,	"
	S. B. Arment,	Bloomsburg.
Secretary and Treasurer,	W. M. Reber,	Bloomsburg.

MEMBERS.

Arment, S. B., Bloomsburg.	Robins, W. B., Catawissa.
Bruce, I. C., Bloomsburg.	Robins, John K., Catawissa [1885].
Brown, J. J., Bloomsburg.	Sharpless, B. F., Catawissa.
Kline, L. B., Catawissa [1875].	Steck, C. T., Mainville.
Lashelle, R. M., Centralia [1887].	Swisher, Thos. J., Jerseytown [1871].
McKelvy, J. B., Bloomsburg.	Vastine, J. H., Catawissa [1875].
Montgomery, Jas. R., Buckhorn [1886].	Willits, I. W., Bloomsburg.
Reber, W. M., Bloomsburg [1876].	Wintersteen, J. C., Numidia.
Redeker, F. W., Espy [1881].	Zimmerman, Pius, Numidia.

CRAWFORD COUNTY.

OFFICERS.

President,	J. K. Roberts,	Custards.
Vice-Presidents,	J. R. Mosier,	Hayfield.
	C. C. Hill,	Meadville.
Secretary and Treasurer,	J. C. Cotton,	Meadville.

MEMBERS.

Calvin, D. M., Meadville [1868].	Hall, F. L., New Richmond.
Clark, G. L., Centreville.	Hill, C. C., Meadville.
Collom, D. L., Meadville.	Moser, J. R., Hayfield.
Cooper, J. M., Meadville [1890].	Roberts, J. K., Custards.
Cotton, J. C., Meadville [1882].	Smith, H. E., Saegerstown.
Dewey, E. H., Meadville [1882].	Strayer, J. P., Cambridge.
Farrelly, Ellis M., Townville [1882].	Woodring, C. P., Meadville.
Greenfield Robert, N. Penn Line.	Young, Theodore J., Titusville [1890].

CUMBERLAND COUNTY.

OFFICERS.

President,	J. J. Koser,	Shippensburg.
Vice-Presidents,	A. L. Allen,	Carlisle.
	J. W. Bowman,	Camp Hill.
Secretary,	T. Stewart, Jr.,	Carlisle.
Corresponding Secretary,	R. L. Sibbet,	"
Treasurer,	S. P. Ziegler,	"

MEMBERS.

Allen, A. R., Carlisle.	Koons, P. R., Mechanicsburg.
Ayers, Wilmot, Harrisburg (Dauphin Co.).	Koser, J. J., Shippensburg [1886].
Betz, I., Oakville.	Krise, C. W., Carlisle [1877].
Bixler, J. R., Carlisle [1884].	Longsdorf, W. H., Carlisle [1871].
Bowman, J. W., Camp Hill [1888].	Marshall, J. B., Shippensburg.
Boyd, J. M., Walnut Bottom	Patterson, J. S., Middlesex [1890].
Brasseur, J. B., Carlisle.	Reily, W. F., Carlisle [1880].
Claudy, J. C., Newville [1869].	Sibbet, R. Lowry, Carlisle [1870].
Dale, W. W., Carlisle [1868].	Stewart T., Carlisle.
Davis, J. C., Carlisle.	Stewart, W. G., Newville [1873].
Grove, George, Big Spring [1868].	Van Camp, J. E., Plainfield.
Hummel, C. C., Mechanicsburg [1881].	Ziegler, S. P., Carlisle [1870].
	Zook, E. J., Newville.

DAUPHIN COUNTY.

OFFICERS.

President,	W. H. Beane,	Middletown.
Vice-Presidents,	H. R. Coover,	Harrisburg.
	H. B. Walter,	"
Secretary,	Paul A. Hartman,	"
Treasurer,	E. H. Coover,	"

MEMBERS.

Beane, W. H., Middletown [1879].	Dunott, Thos J., Harrisburg [1881].
Bischoff, W. H., Halifax.	Egle, W. H., Harrisburg.
Bishop, W. T., Harrisburg [1881].	Ellenberger J. W., Harrisburg [1881].
Bowman, J. F., Millersburg [1878].	Fritchey J. A., Harrisburg [1881].
Coover, D. H., Harrisburg [1875].	Garver, Jane K., Harrisburg [1883].
Coover, Eli H., Harrisburg [1876].	Gerhard, J. Z., Harrisburg [1873].
Coover, F. W., Harrisburg [1883].	Gerhard, M. N., Harrisburg.
Coover, H. R., Harrisburg.	Gorgas, S. R., Harrisburg [1877].
Coover, J. H., Harrisburg.	Hamilton, Hugh, Harrisburg [1874].

Hartman, Paul A., Harrisburg [1875].	Rahter, C. A., Harrisburg [1873].
Jauss, C. E., Harrisburg [1884].	Roop, J. W., Harrisburg.
McGowan, H., Harrisburg [1876].	Seibert, W. H., Steelton [1887].
Mish, G. F., Middletown.	Smith, C. H., Linglestown.
Orth, H. L., Harrisburg [1868].	Stevens, J. C., Harrisburg.
Park, J. W., Harrisburg [1882].	Walter, H. B., Harrisburg.
Peters, J., Steelton.	Witman, H. O., Harrisburg [1866].
Putt, M. O., Churchville.	

DELAWARE COUNTY.

OFFICERS.

President,	W. B. Ulrich,	Chester.
Vice-President,	W. P. Painter,	Darby.
Secretary,	Linnæus Fussell,	Media.
Treasurer,	L. M. Bullock,	Chester.

MEMBERS.

Baker, Frances N., Media [1881].	Kerlin, Isaac N., Elwyn [1869].
Bartleson, Henry C., Fernwood [1884].	Lainé, D. T., Media.
Bartleson, S. P., Clifton Heights [1879].	Lehman, William F., Chester.
Bird, William, Chester.	Long, F. F., Chester
Brown, Ellen E., Chester.	Longstreth, M. Fisher, Sharon Hill [1876].
Bullock, L. M., Chester [1885].	Mitchell, Mary V., Media [1888].
Darlington, Horace H., Concordville.	Nickle, S. Pusey, Primos.
DeLannoy, C. W., Chester [1884].	Painter, William P., Darby.
Dickeson, Morton P., Glen Riddle.	Partridge, C. L., Ridley Park [1884].
Dickeson, W. T. W., Media [1863].	Phillips, J. Willoughby, Clifton Heights [1881].
Forwood, J. L., Chester.	Price, Hannah J., Chester [1884].
Fronfield, J. Harvey, Media [1885].	Risley, S. D., Media [1878].
Fussell, Linnæus, Media [1875].	Rose, David, Chester.
Given, S. A. Mercer, Clifton Heights [1888].	Stellwagen, Thomas C., Media [1883].
Graham, F. R., Chester [1884].	Trimble, Samuel, Lima.
Horner, J. H., Thornton.	Ulrich, W. B., Chester [1870].
Jefferis, D. W., Chester [1876].	Wilmarth, A. W., Elwyn.

ELK COUNTY.

OFFICERS.

President,	S. S. Smith,	Emporium (Cameron).
Vice President,	Jos. H. Hoffman,	St. Mary's.
Secretary,	A. B. Bevier,	Wilcox.
Treasurer,	F. W. Sapp,	Dagus Mines.

MEMBERS.

Bardwell, E. O., Emporium (Cameron).	Holt, Hugh, Arroyo.
Bevier, A. B., Wilcox.	Palmer, W. R., Quay.
Corbin, A. K., Wilcox.	Russ, Eben J., St. Mary's [1884].
De Long, W. H., Emporia, (Fla.) [1886].	Sapp, F. W., Dagus Mines
Early, F. G., Ridgway.	Smith, H. H., Quay.
Free, James E., Benezette.	Smith, S. S., Driftwood (Cameron).
Hartman, W. B., St. Mary's [1882].	Waid, J. T., Ridgway [1886].
Heilman, R. P., Emporium (Cameron) [1886].	Wells, J. H., Wilcox [1888].
Hoffman, J. H., St. Mary's [1885].	Williams, E. T., Calladonia.
	Williams, W. L., Ridgway [1882].
	Wilson, C. G., St. Mary's [1882].

ERIE COUNTY.

OFFICERS.

President,	Alvin Thayer,	Erie.
Vice-President,	B. H. Putnam,	North East.
Secretary and Treasurer,	D. N. Dennis,	Erie.

MEMBERS.

Baker, L. B., Erie.	Mackres, H. C., Corry [1882].
Brandes, C., Erie [1869].	Montgomery, J. H., Erie.
Clark, J. T., Erie.	Moor, M. M., Wesleyville.
Clements, F. C., Waterford.	Putnam, B. H., North East.
Delany, J. H., Erie.	Rockwell, L. D., Union City.
Dennis, D. N., Erie.	Sherwood, A. C., Union City [1886].
Duff, R. H., Girard.	Silliman, J. E., Erie [1878].
Dunning, F. W., Miles Grove.	Stewart, J. L., Erie [1867].
Elston, G. A., Corry.	Temple, F. M., Fairview.
Evans, W. C., Erie.	Thayer, A., Erie [1886].
Finerty, J. J., Erie [1890].	Thayer, H. W., Corry [1890].
Garries, G. A., Erie.	Woods, A. A., Erie [1890].
Gibson, W. O., Erie.	Wright, J. W., Elgin.
Loop, D. D., North East [1868].	

FAYETTE COUNTY.

OFFICERS.

President,	J. W. Worrell,	Brownsville.
Vice-President,	J. A. Batton,	Uniontown.
Secretary and Treasurer,	Levi S. Gaddis,	"
Assistant Secretary,	J. D. Sturgeon,	"

MEMBERS.

Batton, John A., Uniontown.	Jackson, Isaac, Brownsville [1890].
Buttermore, Smith, Connellsville.	Mathiot, H. B., Smithfield.
Clarke, R. W., Dunbar [1881].	McClenathen, J. C., Connellsville
Davidson, J. H., Perryopolis.	[1890].
Duncan, W. S., Brownsville.	Osborne, W. W., Upper Middleton
Eastman, Henry, Merrittstown.	Phillips, Ellis, New Haven [1880].
Ewing, Jas. B., Uniontown [1878].	Reichard, C. C., Brownsville [1878].
Fuller, Smith, Jr., Uniontown.	Shoemaker, B., Brownsville.
Gaddis, Levi S., Uniontown [1878].	Shoemaker, W. A., Dawson [1890].
Gordon, J. W., Fayette City.	Singer, J. J., Connellsville.
Greene, Wilson, New Geneva.	Smith, P. F., Mount Braddock [1890].
Gummert, C. L., Brownsville [1890].	Sturgeon, J. D., Uniontown
Hackney, J. S., Uniontown [1890].	Sturgeon, W. H., Uniontown [1876].
Hazlett, I. C., Uniontown [1885].	Torrence, J. R., New Haven [1888].
Hazlett, J. D., Vanderbilt [1884].	Van Voorhis, J. S., Bellevernon [1869].
Holbert, J. F., Fairchance.	White, T. H., Connellsville [1887].
Hopwood, W. H., Upper Middleton.	Worrell, J. W., Brownsville [1890].

. FRANKLIN COUNTY.

OFFICERS.

President,	C. F. Palmer,	Chambersburg.
Vice-President,	H. M. Fritz,	Quincy.
Secretary,	G. S. Hull,	Chambersburg.
Treasurer,	L. F. Suesserott,	"

MEMBERS.

Amberson, J. B., Waynesboro'.	McLanahan, J., Chambersburg.
Bishop, S. S., Mercersburg [1888].	Montgomery, John, Chambersburg.
Bonebrake, H. X., Chambersburg.	Montgomery, P. B., Chambersburg
Chritzman, H. G., Welsh Run [1879].	[1871].
Devilbiss, H. C., Chambersburg.	Noble, W. P., Upton [1879].
Devor, John, Fort Loudon.	Palmer, C. F., Chambersburg.
Frantz, Jos., Waynesboro'.	Ramsey, R. W., Saint Thomas [1877].
Fritz, H. M., Quincy, P. O.	Schively, J. B., Greenvillage.
Hartzell, E., Fayetteville.	Snively, I. N., Waynesboro' [1873].
Hull, G. S., Chambersburg [1884].	Strickler, A. H., Waynesboro' [1875].
Lantz, W. O., Lemasters [1887].	Suesserott, L. F., Chambersburg.
Leberknight, A. K., Orrstown.	Unger, D. F., Mercersburg [1881].
Maclay, David, Greenvillage	Weagley, T. H., Marion.

GREENE COUNTY.

OFFICERS.

President,	J. T. Iams,	Waynesburg.
Vice-President,	J. L. Millikin,	Greensboro'.
Recording Secretary,	Jane Teagarden,	Waynesburg.
Corresponding Secretary,	R. E. Brock,	"
Treasurer,	T. H. Sharpnack,	Jefferson.

MEMBERS.

Blachly, F. S., Clarksville.	Owen, J. N., Deep Valley.
Brock, R. E., Waynesburg [1890].	Owen, S. B., Oak Forest.
Burroughs, H. S., Rutan.	Patton, A. B., Waynesburg.
Ferrell, R. L., Windridge.	Sharpnack, T. H., Jefferson [1890].
Hill, T. B., Ruffs Creek [1890].	Teagarden, Jane, Waynesburg [1887].
Iams, J. T., Waynesburg [1886].	Throckmorton, W. S., Nineveh.
Millikin, J. L., Greensboro' [1887].	Ullom, J. T., Waynesburg [1887].
Miller, J. H., Bristoria.	Williams, J. F., Greensboro'.
Murray, J. M., Windridge.	

HUNTINGDON COUNTY.

OFFICERS.

President,	J. C. Stever,	Three Springs.
Vice-President,	D. Bernhardt,	Dublin Mills.
Secretary and Treasurer,	G. C. Borst,	Mount Union.

MEMBERS.

Bernhardt, D., Dublin Mills [1888].	McCarthy, H. C., Altoona (Blair Co.)
Borst, G. C., Mount Union [1887].	[1888].
Browning, W. T., Orbisonia.	McCarthy, A. R., Mount Union.
Brumbaugh, A. B., Huntingdon	McCauley, C. A., Petersburg [1887].
[1873].	Miller, D. P., Huntingdon [1873].
Harmon, G. G., Huntingdon [1888].	Myers, R., Huntingdon [1888].
James, G. W. C., Orbisonia [1880].	Peterson, F. C., Warrior's Mark.
Johnson, W. H., Dudley [1886].	Stever, J. C., Three Springs [1887].
Lowrie, W. L., Tyrone (Blair Co.)	Wasson, J. E., Spruce Creek.
[1884].	

INDIANA COUNTY.

OFFICERS.

President,	William B. Ansley,	Saltsburg.
Vice-President,	A. F. Purington,	Indiana.
Secretary,	William Anderson,	"
Treasurer,	William Hosack,	"

MEMBERS.

Anderson, William, Indiana [1862].	McChesney, R., Shelocta [1884].
Ansley, W. B., Saltsburg [1888].	McChesney, William A., Shelocta.
Cameron, Norris, Grant.	McHenry, George J., Brady.
Carson, Thomas, Saltsburg.	McMullen, James, Brush Valley
Cass, J. F., West Lebanon.	Purington, A. F., Indiana [1890].
Claggett, L. S., Blairsville [1878].	Rutledge, A. T., Blairsville.
Ehrenfelt, N. Frank, Indiana	Rutledge, S. R., Blairsville [1879].
Hosack, William, Indiana.	Short, James C., Onberg.
Jackson, D. P., Black Lick Station	Torrence, J. M., Indiana.
Klingensmith, I. P., Blairsville [1876].	

JEFFERSON COUNTY.

OFFICERS.

President,	J. W. Foust,	Reynoldsville.
Vice-President,	J. C. King,	"
Secretary and Treasurer,	A. F. Balmer,	Brookville.

MEMBERS.

Balmer, A. F., Brookville [1879].	Matson, Walter W., Brookville.
Beyer, William F., Punxsutawney.	Neale, J. B., Reynoldsville [1890].
Brewer, J. J., Clarrington (Forest Co.).	Rankin, M. M., Brockwayville [1888].
Brown, R. B., Summerville [1878]	Reynolds S., Reynoldsville [1890].
Brown, J. K., Summerville.	Stahlman, J. C., Richardsville.
Foust, J. W., Reynoldsville [1880].	McKibbin, J. A., Pittsburg (Allegheny Co.).
Free, Spencer M., Beechtree.	Thompson, John, Corsica.
Haven, J. A., Summerville.	Thompson, Harry P., Reynoldsville.
Holden, N. E., Corsica.	Wilson, J. C., Sigel.
King, J. C., Reynoldsville [1880].	Wilson, Harry, Stanton.
Lawson, T. C., Brookville.	
Matson, C. M., Brookville.	

LANCASTER COUNTY.

OFFICERS.

President,	H. A. Mowery,	Marietta.
Vice-Presidents,	H. M. Black,	Strasburg.
	I. M. Witmer,	Conestoga.
Recording Secretary,	Wm. Blackwood,	Lancaster.
Corresponding Secretary,	O. Roland,	"
Treasurer,	G. R. Rohrer,	"

MEMBERS.

- Albright, F. G., Lancaster [1874].
 Alexander, H. M., Marietta [1881].
 Baker, J. E., Lancaster [1886].
 Bean, George W., Bainbridge [1878].
 Berntheizel, G. W., Columbia [1877].
 Black, H. M., Strasburg [1880].
 Blackwood, W., Lancaster [1877].
 Boardman, W., Lancaster [1886].
 Bockius, S. A., Columbia [1872].
 Bolenius, R. M., Lancaster [1881].
 Bryson, L. M., Martickville [1888].
 Bushong, I., New Holland [1875].
 Charles, J., Lincoln [1883].
 Clinger, P. J., Conestoga.
 Compton, W., Lancaster [1868].
 Craig, Alex., Columbia [1869].
 Davis, M. L., Lancaster [1874].
 Davis, S. T., Lancaster [1869].
 Day, G. E., Strasburg.
 Deaver, J. M., Buck [1881].
 Detwiler, F. C., Lancaster.
 Dunlap, J. F., Manheim.
 Franklin, C. M., Lancaster [1888].
 Hance, Theo. F., Columbia.
 Helmer, A. H., New Providence.
 Herr, A. J., Lancaster [1876].
 Herr, B. F., Lancaster [1881].
 Herr, M. L., Lancaster [1872].
 Herr, W. M., Lancaster.
 Hertz, J. K., Litiz [1875].
 Hurst, M. W., Earlville.
 Ilyus, E. B., Lancaster.
 Kautman, W. L., Paradise.
 Kendig, B., Salunga [1888].
 King, George A., Lancaster.
 Kline, D. F., Lancaster.
 Kohler, J., New Holland [1883].
 Kreider, J. S., Akron [1884].
 Lehman, B., Leaman Place [1871].
 Lehman, J. R., Mountville.
 Lightner, I. N., Ephrata [1881].
 Lineaweaver, J. K., Columbia [1875].
 Livingston, T. M., Columbia [1875].
 Markle, C. F., Columbia.
 Mayer, I. H., Willow Street [1877].
 Mentzer, J. F., Ephrata [1888].
 Miller, A. M., Bird-in-Hand [1876].
 Mowery, H. A., Marietta [1886].
 Mowery, J. L., Cresswell [1883].
 Muhlenberg, Frank, Lancaster.
 Musser, H. E., Witmer [1881].
 Musser, J. H., Lampeter [1876].
 Netscher, C. E., Lancaster.
 Newpher, J. J., Mount Joy [1884].
 Overfield, I. M., Lancaster.
 Parke, A. G. B., Gap [1877].
 Plank, E. H., Christiana.
 Reed, J. A. E., Lancaster [1883].
 Ringwalt, M., Hempfield [1883].
 Roebuck, P. J., Litiz [1866].
 Rohrer, G. R., Lancaster [1884].
 Rohrer, T., Quarryville.
 Roland, O., Lancaster [1878].
 Schweitzer, R. S., Adamstown.
 Shartle, J. M., Millersville.
 Shenk, D. H., Rohrerstown [1884].
 Shenk, J. H., Litiz [1883].
 Smith, W. H., Intercourse [1881].
 Thomson, I. A., Jr., Wrightsville
 (York Co.) [1888].
 Thompson, T., Lancaster.
 Trabert, J. W., Annville (Lebanon
 Co.) [1888].
 Trickler, A. C., Elizabethtown [1871].
 Warren, T. R., Lancaster.
 Welchans, G. R., Lancaster.
 Wentz, M. J., New Providence [1876].
 Wentz, T. H., Kirkwood.
 Weseman, G. T., Bainbridge.
 Witmer, J. M., Conestoga [1888].
 Yost, J. F., Bethsaida.
 Zeigler, J. L., Mount Joy [1865].
 Zeigler, J. P., Mount Joy [1881].
 Zell, J. W., Fairmount.

LAWRENCE COUNTY.

President,	R. A. Wallace,	New Castle.
Vice-President,	T. J. Blackwood,	"
Treasurer,	A. M. Cook,	"
Secretary,	Joseph Cooper,	"

MEMBERS.

- Blackwood, T. J., New Castle.
 Cleland, D. T., Harlansburg.
 Cook, A. M., New Castle.
 Cooper, Joseph, New Castle.
 Cunningham, A. A., Volant.
 Cunningham, D., Wertenburg.
 Donnan, E. A., New Castle.
 Foster, A., New Castle.
 Linville, Mont, New Castle [1890].
 Moore, Jesse, New Castle.
 McKee, John, Princetown.
 Nye, Hiram, Enon Valley.
 Pollock, J. K., New Castle.
 Reed, C. A., New Castle.
 Smith, J. A., New Castle.
 Smith, W. L., New Wilmington.
 Wallace, R. A., New Castle.
 Wallace, R. D., New Castle.

LEBANON COUNTY.

OFFICERS.

President,	I. L. Uhrich,	Annville.
Vice-Presidents,	J. C. Bucher,	Lebanon.
	G. L. Weiss,	"
Secretary,	J. Walter,	"
Treasurer,	S. P. Heilman,	Heilman Dale.

MEMBERS.

Beckley, J. R., Lebanon [1888].	Lineaweaver, G. P., Lebanon [1888].
Brecht, L. H., Bismark.	Reinoehl, J. R., Lebanon.
Bucher, B. D., Lebanon [1871].	Roedel, H. H., Lebanon
Bucher, J. C., Lebanon [1885].	Seibert, G. W., Lebanon.
Bucher, I. R., Lebanon [1887].	Trabert, J. Wm., Annville [1876].
Gloninger, A. B., Lebanon [1885].	Uhrich, I. L., Annville [1884].
Guilford, Wm. M., Lebanon [1887].	Walter, John, Lebanon.
Heilman, S. P., Heilman Dale.	Weiss, S., Jr., Lebanon [1886].
Hess, R. H., Jonestown.	Wiess, G. L., Lebanon.
Keath, J. W., Shaefferstown [1888].	Zimmerman, J. D., Lebanon [1886].

LEHIGH COUNTY.

OFFICERS.

President,	W. H. Hartzell,	Allentown.
Vice-Presidents,	R. W. Young,	Slatington.
	A. J. Erdman,	Orefield.
Recording Secretary,	M. F. Cawley,	Allentown,
Corresponding Secretary,	W. A. Riegel,	Catasauqua.
Treasurer,	M. E. Hornbeck,	Catasauqua.

MEMBERS.

Cawley, M. F., Allentown.	Martin, E. G., Allentown [1866].
Dickensheid, E. H., Allentown.	Miller, A. S., Saegersville.
Erdman, A. J., Orefield.	Miller, J. F., Slatington.
Erdman, W. B., Macungy.	Quigg, F. W., Catasauqua.
Hartzell, W. H., Allentown.	Reichard, P. L., Allentown.
Herbst, H. H., Allentown.	Riegel, H. H., Catasauqua,
Holben, F. J., Lyon Valley.	Riegel, W. A., Catasauqua [1890].
Hornbeck, M. E., Catasauqua.	Ritter, F. O., Slatington.
Horne, H. Y., Coplay.	Schaerer, T. A., Catasauqua.
Keim, C. J., Catasauqua.	Schaffer, Charles, Allentown.
Kern, A. J., Slatington.	Young, R. W., Slatington.
Lear, J. R., Allentown.	

LUZERNE COUNTY.

OFFICERS.

President,	G. W. Guthrie,	Wilkesbarre.
Vice-Presidents,	W. H. Faulds,	Luzerne.
	J. B. Mahon,	Pittston.
Secretary and Treasurer,	M. Gibson,	Wilkesbarre.

MEMBERS.

Barney, D., Wilkesbarre.	Kirwan, G. H., Wilkesbarre.
Barrett, C. J., Pittston.	Knapp, C. P., Wyoming [1884].
Barton, A. A., Plains [1881].	Lockard, D. H., Plymouth.
Beckwith, J. F., Plymouth.	Long, Charles, Wilkesbarre [1885].
Biehl, J. P., Plymouth.	Longshore, W. R., Hazleton [1884].
Bowman, J. H., Audenreid.	Mahon, John B., Pittston.
Brooks, James, Plains [1886].	Matlack, G. T., Miner's Mills.
Brundage, F., Conyngham.	Mayer, E. R., Wilkesbarre [1886].
Carle, Charles W., Kingston.	Mears, D. W., Hazleton.
Clark, George A., Wilkesbarre.	Murphy, J. A., Wilkesbarre [1874].
Corss, Fred., Kingston [1869].	Neale, H. M., Upper Lehigh.
Crawford, J. B., Wilkesbarre [1867].	Rippard, J. C., Wilkesbarre [1883].
Davis, R., Wilkesbarre [1874].	Roe, J. I., Wilkesbarre.
Diefenderfer, E. L., Ashley.	Rogers, L. L., Kingston [1888].
Doolittle, E. B., Jeansville.	Ross, I. E., Wilkesbarre [1885].
Faulds, W. H., Luzerne [1885].	Shive, P. C., Plains [1867].
Fell, A. G., Wilkesbarre.	Shoemaker, L. I., Wilkesbarre.
Gibbons, P. J., Pittston.	Snyder, A. C., White Haven.
Gibson, M., Wilkesbarre.	Solt, Thomas J., Mountain Top.
Guthrie, G. W., Wilkesbarre [1885].	Spencer, C. A., Dallas.
Hakes, Harry, Wilkesbarre [1885].	Stewart, Walter S., Wilkesbarre.
Hileman, J. S., Pittston.	Taylor, L. H., Wilkesbarre [1883].
Holly, S. L., Nanticoke.	Trimmer, S. W., White Haven.
Howell, J. T., Wilkesbarre [1886].	Underwood, G., Pittston [1870].
Hughes, M. B., Shickshinny.	Van Loon, W. H., Wilkesbarre.
Hutchins, R. H., Pittston [1884].	Weaver, W. G., Wilkesbarre [1885].
James, T. A., Ashley.	Weida, J. B., Luzerne.
Johnson, F. C., Wilkesbarre [1886].	Wentz, John L., Jeddo.
Jones, D. T., Plymouth [1888].	Whitney, H. L., Plymouth.
Jones, John Harris, Wilkesbarre.	Williams, Evan, Sugar Notch.
Kalb, G. B., Audenreid.	

LYCOMING COUNTY.

OFFICERS.

President,	H. G. McCormick,	Williamsport.
Vice-Presidents,	C. W. Youngman,	"
	John Nevins,	Jerseyshore.
Secretary,	J. P. Connelly,	Williamsport.
Treasurer,	J. A. Klump,	"

MEMBERS.

Adams, C. M., Williamsport.	Drake, E. G., Antrim (Tioga Co.).
Ball, F. P., Lock Haven (Clinton Co.) [1886].	Earley, C. R., Ridgway (Elk Co.) [1886].
Bell, G. F., Newberry.	Fessler, H. H., Newberry.
Brennan, James, Westport.	Fleming, I. J., Trout Run.
Burrell, J. L. A., Williamsport [1886].	Fuller, H. C., Jerseyshore [1890].
Campbell, E. B., Williamsport.	Hagenbuch, Phoebe, Williamsport.
Church, Rita B., Williamsport [1883].	Hill, Geo. A., Williamsport [1886].
Cline, Edward W., Jerseyshore.	Howell, William, Cogan Station.
Cline, G. H., Jerseyshore [1890].	Hughes, D. E., Williamsport [1888].
Connelly, J. P., Williamsport [1886].	Hull, A. P., Montgomery Station.
Detwiler, B. H., Williamsport [1866].	Hull, W. R., Williamsport [1864].
	Hull, W. W., Williamsport.

Kimble, Z. E., Liberty (Tioga Co.) [1888].	Rich, Thos. C., Williamsport [1888].
Klump, John A., Williamsport.	Richter, A., Williamsport [1872].
Konkle, W. B., Montoursville.	Robinson, B. F., Leetonia.
Lumley, E. D., Williamsport.	Saylor-Brown, Jean, Williamsport [1886].
Lyon, Chas., Montoursville [1888].	Schneider, Chas., South Williamsport.
Lyon E., Williamsport [1871].	Schneider, L., Williamsport [1885].
Lyon, Thos., Williamsport [1872].	Thornton, T. C., Lewisburg (Union Co.).
McCormick, H. G., Williamsport [1890].	Yost, B. M., Linden.
Milnor, M. F., Warrensville.	Youngman, Charles W., Williamsport [1884].
Nevins, John, Jerseyshore.	
Nutt, Geo. D., Williamsport [1873].	

McKEAN COUNTY.

OFFICERS.

President,	F. H. Murdoch,	Bradford.
Vice-President,	T. C. James,	"
Secretary and Treasurer,	W. J. Russell,	"

MEMBERS.

D. E. Ash, Kendall.	Thomas L. Kane, Kane.
G. E. Benninghoff, Bradford.	H. L. McCoy, Smethport.
C. D. Buss, Bradford.	F. H. Murdoch, Bradford.
H. A. Canfield, Bradford.	H. J. Nichols, Bradford.
S. B. Dorn, Bradford.	James Nichols, Bradford.
J. A. Douglas, Eldred.	J. V. Otto, Port Allegheny.
M. E. Drake, Bradford.	W. J. Russell, Bradford.
S. D. Freeman, Smethport.	J. B. Stewart, Bradford.
T. C. James, Bradford.	A. M. Straight, Bradford.
Elizabeth D. Kane, Kane.	A. A. Van Slike, Mt. Jewett.
Evan O. Kane, Kane.	Joseph Ward, Mt. Alton.
Harriet A. Kane, Kane.	F. W. Winger, Rew City.

MERCER COUNTY.

OFFICERS.

President,	M. M. Magoffin,	Mercer.
Vice-Presidents,	J. M. Martin,	Grove City.
	J. H. Reed,	Sharon.
Secretary,	R. D. Morford,	Transfer.
Treasurer,	R. M. Hope,	Mercer.

MEMBERS.

Bachop, John C., Sheakleyville.	Hillier, J. W., West Middlesex [1878].
Byles, F. G., Fredonia.	Hope, R. M., Mercer.
Caldwell, J. R., New Hamburg.	Hosack, J. P., Mercer [1870].
Clark, A. T., Greenville [1871].	Jackson, T. M., Hadley [1878].
Davidson, S. S., Mercer [1890].	Livingston, J. B., W. Middlesex [1869].
Elliot, Thomas, Worth.	Magoffin, M. M., Mercer [1890].
Geibner, E. X., Sandy Lake [1872].	Martin, J. M., Grove City.
Griswold, E., Sharon [1873].	McElrath, J. B., Jackson Centre [1874].
Hanna, D. B., Stoneboro.	Mitchell, T. H., Jamestown [1884].
Heilman, S., Sharon [1874].	

Morford, R. D., Transfer [1890].	Shilling, G. W., Sharon.
Mossman, B. E., Greenville [1870].	Tidd, E. J., Clarksville.
Phillips, D. A., Sheakleyville.	Twitmyer, J. H., Sharpsville [1875].
Reed, J. H., Sharon [1880].	Yeager, G. W., Mercer.
Scoville, J. M., Sharpsville [1890].	

MIFFLIN COUNTY.

OFFICERS.

President,	Walter H. Parcels,	Lewistown.
Vice-Presidents,	S. H. Rothrock,	Reedsville.
	V. I. McKim,	Logan.
Secretary,	A. S. Harshberger,	Lewistown.
Treasurer,	J. T. Mahon,	"

MEMBERS.

Bigelow, B. A., Belleville.	Mahon, J. T., Lewistown.
Clarkson, J. A. C., Lewistown.	McKim, V. I., Logan.
Dean, G. C., Lewistown.	Nipple, D. Clark, Newton Hamilton.
Floyd, J. B., Belleville [1880].	Parcels, W. H., Lewistown [1882]
Getter, J. P., Belleville [1888].	Rothrock, A. McVeytown [1877].
Harshberger, A., Milroy [1874].	Rothrock, S. H., Reedsville.
Harshberger, A. S., Lewistown [1875].	Van Valzah, T. H., Lewistown [1882].
Hurlbutt, C. S., Lewistown.	Wilson, W. S., McVeytown [1883].

MONTGOMERY COUNTY.

OFFICERS.

President,	Alice Bennett,	Norristown.
Vice-Presidents,	D. N. Bergey,	North Wales.
	H. Sykes,	Norristown.
Corresponding Secretary,	J. B. Carrell,	Hatboro.
Recording Secretary,	H. H. Whitcomb,	Norristown.
Treasurer,	E. M. Corson,	"

MEMBERS.

Abbot, G. E., Bryn Mawr.	Hall, W. M., Conshohocken [1884].
Anderson, Joseph, Ardmore [1872].	Hartman, G. T., Port Kennedy [1890].
Arnold, Herbert, Ardmore [1883].	Highley, G. N., Conshohocken [1884].
Beaver, D. R., Conshohocken [1875].	Hunsberger, J. Newton, Skippack.
Bennett, Alice, Norristown [1881].	Jarrett, Harry, Camden [1888].
Bergey, D. H., North Wales [1887].	Keeler, V. Z., Harleysville.
Bowman, J. L., Telford.	Knipe, J. O., Norristown [1879].
Bradley, Charles, Norristown [1876].	Kugler, Anna, Ardmore.
Care, J. R., Worcester.	Leedom, Oscar, Plymouth Meeting [1884].
Carrell, J. B., Hatboro' [1888].	Loux, Hiram R., Louderton.
Chase, R. H., Norristown [1883].	Mann, C. H., Bridgeport [1876].
Corson, E. M., Norristown [1876].	Markley, Paul H., Hatboro'.
Corson, Hiram, Conshohocken [1862].	McQuaide, F. Quindare, Norristown.
Davis, John, Pottstown [1883].	Meschter, G. K., Worcester [1888].
Drake, H. H., Norristown [1879].	Mewhinney, J. C., Spring City (Chester).
Eisenberg, P. Y., Norristown [1874].	Moore, Mabel W., Norristown.
Gerhard, E. F., Norristown.	
Groff, J. W., Harleysville [1890].	

Morey, Mary, Norristown.	Stiles, G. M., Conshohocken [1876].
Neiman, H. Y., Pottstown.	Sykes, H., Norristown.
Paxson, John, Jenkintown [1888].	Umstead, J. R., Norristown [1888].
Rambo, S. M., Oaks Station.	Van Artsdalen, F. V., Tioga (Phila.)
Read, L. W., Norristown [1883].	[1884].
Reid, J. K., King of Prussia [1867].	Weaver, J. D., Norristown.
Richards, E. E., Norristown [1888].	Weaver, J. K., Norristown [1875].
Sargent, G. P., Bryn Mawr [1870].	Weber, C. Z., Norristown [1883].
Schrack, John, Jeffersonville [1862].	Weber, M. Y., Evansburg.
Seiple, S. C., Centre Square [1883].	Whitcomb, H. H., Norristown [1881].
Shelley, D. W., Upper Dublin [1886].	Wiley, S. N., Norristown.
Spear, J. C. (U. S. N.), Governor's Island, N. Y.	Wilson, F. S., Jarrettstown [1884].
	Wolfe, Samuel, Skippack [1876].

MONTOUR COUNTY.

OFFICERS.

President,	N. W. Voorhees,	Danville.
Vice-Presidents,	C. B. Mayberry,	"
	P. C. Newbaker,	"
Secretary,	James Ogleby,	"
Treasurer,	—,	

MEMBERS.

Beck, G. A., Danville.	Newbaker, P. C., Danville [1879].
Curry, E. A., Danville.	Ogleby, James, Danville [1875].
Diller, Theo., Danville.	Schultz, S. S., Danville [1867].
Grael, George, Danville.	Smith, N. M., Riverside (Northumber-
Hoffa, J. P., Washingtonville [1882].	land [1884].
Kimerer, J. R., Danville.	Strawbridge, James D., Danville
Mayberry, C. B., Danville.	[1881].
Meredith, H. B., Danville.	Voorhees, N. W., Danville.

NORTHAMPTON COUNTY.

OFFICERS.

President,	J. W. Moore,	Easton.
Vice-Presidents,	Isaac Ott,	"
	A. A. Seem,	Bangor.
Recording Secretary,	Charles McIntire, Jr.,	Easton.
Corresponding Secretary,	E. M. Green,	"
Treasurer,	David Engelman,	"

MEMBERS.

Anderson, G. R., Portland.	Collmar, Charles, Easton.
Andreas, B. A., Ackermanville.	Cope, Thomas, Nazareth.
Apple, S. S., Easton.	Cox, W. C., Easton.
Beck, R. H., Hecktown [1884].	Deats, William, Easton.
Berlin, J. O., Bath [1884].	Dilliard, B. F., East Bangor.
Breinig, P. B., Bethlehem [1874].	Engelman, David, Easton [1876].
Brown, Alfred, Hellertown.	Engelman, J. P., Cherryville [1876].
Buzzard, John, Bangor [1880].	Erwin, F. H., South Bethlehem.
Clemens, B., Easton.	Estes, W. L., South Bethlehem [1885].
Cline, C. H., Portland.	Evans, E. W., Easton.

Field, G. B. Wood, Easton.	Saeger, B. L., Nordhoff, Cal.
Green, E. M., Easton [1888].	Schnabel, E. D., Bethlehem.
Green, J. T., Easton.	Schoch, W. E., Easton.
Green, Traill, Easton [1863].	Seem, A. A. Bangor [1879].
Harne, F. H., Santee.	Seem, A. K., Martin's Creek [1870].
Hunt, J. S. Easton [1883].	Seip, Amos, Easton [1863].
Keller, D. H., Bangor [1886].	Seip, W. H., Bath [1883].
Koch, J. G., Petersville.	Serfass, J. J., Easton.
Laciar, H. J., Bethlehem.	Steinmetz, E. G., Hokendauqua,
Lawall, L. H., Bethlehem.	Lehigh Co. [1875].
McAllister, Anna M., Easton.	Stout, A., Bethlehem [1883].
McIlhaney, W. H., Easton [1888].	Swartz, G. N., Pen Argyle.
McIntire, Charles, Jr., Easton [1876].	Swoyer, O. D., South Bethlehem.
Moore, J. W., Easton [1888].	Uhler, S. P., Easton.
Moyer, A. C., Bethlehem.	Uhler, T. M., Philadelphia, Phila-
Ott, C. H., Chapman's Quarries [1888].	delphia Co. [1884].
Ott, Isaac, Easton [1871].	Weaver, H. F., Easton.
Reichard, N. W., Bangor.	Weaver, S. J., Bethlehem [1875].
Rentzheimer, W. H., Hellertown.	Wilson, J. H., Bethlehem [1888].
Roebuck, J. H., Bethlehem.	Wyckoff, A. B., Richmond.

PERRY COUNTY.

OFFICERS.

President,	W. R. Cisna,	Ickesburg.
Vice-President,	W. J. Allen,	New Germantown.
Secretary,	James B. Eby,	Newport.
Corresponding Secretary,	H. O. Orris,	Newport.
Treasurer,	D. B. Milliken,	Landisburg.

MEMBERS.

Allen, W. J., New Germantown.	Milliken, D. B., Landisburg [1866].
Briner, J. H., Ickesburg [1890].	Orris, H. O., Newport [1873].
Cisna, W. R., Ickesburg [1888].	Sheeder, P. J., Shermantdale.
Eby, James B., Newport [1873].	Sheibly, J. P., Landisburg [1876].
Hall, J. C., Millerstown.	Shearer, A. L., Duncannon.
Hooke, B. P., Loysville.	Van Dyke, A. D., Marysville [1888].
Johnson, T. L., Duncannon [1887].	Zimmerman, G. L., Loysville.

PHILADELPHIA COUNTY.

OFFICERS.

President,	W. W. Keen.
Vice-Presidents,	John B. Roberts.
	J. H. Musser.
Secretary,	S. Solis-Cohen.
Assistant Secretary,	James Robinson.
Treasurer,	L. K. Baldwin.

ACTIVE MEMBERS.

Adler, John M. [1888].	Allen, Mary E.
Agnew, D. Hayes [1870].	Allis, Oscar H. [1874].
Alexander, John J.	Allison, Edward W.
Allen, Harrison [1884].	Allyn, H. B.
Allen, J. G. [1884].	Anders, J. M. [1883].

- Andréws, Thomas H. [1876].
 Angney, William M. [1884].
 Apeldorn, Ernst F.
 Armstrong, W. C.
 Ash, H. St. Clair [1862].
 Ashhurst, John, Jr. [1881].
 Ashhurst, Samuel [1876].
 Ashton, S. K. [1888].
 Ashton, William E.
 Atkinson, William B. [1862].
 Atlee, Walter F.
 Aulde, John [1890].
 Baer, B. F. [1883].
 Baker, G. F.
 Baker, W. H. [1879].
 Baldwin, L. K. [1871].
 Baldy, J. M.
 Banes, S. T. [1890].
 Barker, T. Ridgway.
 Barr, D. M. [1875].
 Barr, J. W.
 Bartholow, Roberts [1888].
 Barton, Isaac.
 Barton, J. M. [1878].
 Bates, W. E.
 Baum, Charles [1888].
 Baxter, H. F. [1876].
 Beates, Henry [1888].
 Beatty, T. J.
 Beecher, A. C. W. [1888].
 Bell, E. H.
 Bell, J. R. F. [1884].
 Benner, H. D.
 Bennett, W. H.
 Bernardy, E. P.
 Biddle, A. W.
 Bissey, H. S.
 Bland, T. T.
 Bliss, A. A.
 Bochroch, M. H. [1884].
 Bodamer, G.
 Bournonville, A. C. [1888].
 Bowen, G. W.
 Bower, C. L. [1888].
 Boyd, G. M.
 Boyer, A. H.
 Boyer, D. P.
 Bradfield, G. M.
 Bradford, T. Hewson [1880].
 Bready, C. R.
 Bricker, Charles E.
 Brinton, John H. [1886].
 Brinton, Lewis.
 Broomall, Anna.
 Brous, H. A.
 Brubaker, A. P.
 Brunet, J. E.
 Bryan, H. N.
 Buck, F. J. [1872].
 Buck, W. P.
 Buckby, Wilson [1875].
 Bunce, T. S.
 Bunting, R. R. [1883].
 Burk, W. H.
 Burnett, C. H. [1883].
 Burns, Robert Bruce [1888].
 Burns, W. A. [1888].
 Cadwalader, C. E. [1882].
 Cadwallader, D. W. [1888].
 Cahall, W. C.
 Caldwell, Alexander.
 Campbell, J. M. [1888].
 Cantrell, J. Abbott.
 Capp, W. M. [1888].
 Carey, William A.
 Carrier, F. [1888].
 Carroll, William.
 Cassady, F. F. [1888].
 Castle, F. D. [1888].
 Cattell, H. W.
 Chambers, G. H.
 Chapman, H. C.
 Chase, A. F. [1888].
 Chestnut, J. H. W. [1876].
 Christian, H. M.
 Chrystie, W.
 Clark, L. S. [1876].
 Claxton, Charles
 Cleemann, R. A. [1879].
 Cohen, J. Solis [1876].
 Cohen, S. Solis [1886].
 Collins, James [1884].
 Conner, D. N. [1884].
 Cooke, D. T.
 Cooper, Josiah C.
 Cooper, John C.
 Coyle, Robert
 Crandall, T. V. [1886].
 Croasdale, Hannah T.
 Crowley, T. S.
 Cruice, R. B. [1879].
 Currie, C. A. [1878].
 Curtin, R. G. [1881].
 Curtis, Levi [1862].
 Da Costa, J. C. [1886].
 Da Costa, John C.
 Daland, Judson [1888].
 Darrach, James.
 Davidson, C. C. [1888].
 Davis, G. G. [1885].
 Deakyne, A. C. [1882].
 Deaver, H. C.
 Deaver, J. B. [1883].
 Deaver, R. W.
 Dercum, F. X. [1888].
 Dick, J. W.
 Dixon, W. C.
 Dolley, C. S.

- Donnelly, J. F. [1883].
 Downes, A. J.
 Downs, T. A.
 Dripps, John H.
 Drysdale, Thomas M. [1864].
 Drysdale, William A.
 Duer, E. L. [1888].
 Duhring, L. A. [1877].
 Dulles, C. W. [1883].
 Dundore, A. J.
 Dunglison, R. J. [1867].
 Dunmire, George B. [1874].
 Dwight, H. E. [1888].
 Dwight, M. B.
 Edwards, Joseph F.
 Ekwurzel, William.
 Elder, F. H.
 Ellinger, T. J.
 Ely, T. C.
 Evans, Edward L.
 Evans, Horace.
 Evans, William.
 Faught, G. G. [1884].
 Feldstein, A.
 Fenton, Thomas H. [1880].
 Ferguson, Wm. N.
 Fischer, Emil.
 Fisher, Frank.
 Fisher, H. M.
 Fisher, J. M.
 Fisher, J. V.
 Flick, L. F. [1885].
 Forbes, W. S. [1881].
 Formad, H. F. [1883].
 Fox, C. W. [1884].
 Fox, J. M.
 Fox, L. Webster [1885].
 Franklin, M.
 Fréeman, W. J.
 French, M. S. [1880].
 Freund, H. H. [1888].
 Frick, William S. [1873].
 Frické, Albert [1862].
 Friebis, George [1888].
 Fulton, T. C.
 Fussell, H. M. [1888].
 Gans, E. S.
 Gardner, C. H.
 Garrett, E. F.
 Garrettson, James E.
 Gayley, James F.
 Getchell, F. H. [1888].
 Gibb, Joseph S. [1886].
 Gibson, William J.
 Gillespie, John, Jr. [1888].
 Girvin, Edward R.
 Girvin, Robert M. [1880].
 Githens, W. H. H. [1884].
 Gittings, J. B. H. [1884].
 Goodell, Wm. [1870].
 Goodman, H. E. [1888].
 Graham, James [1884].
 Graham, John.
 Graydon, A.
 Green, W. D.
 Greene, W. H.
 Greenwald, D. F.
 Griffith, J. P. C. [1888].
 Groff, C. A. [1884].
 Gross, F. H. [1884].
 Gross, Wm. D.
 Grove, John H. [1884].
 Gruel, T. H. E.
 Haehnlén, W. F.
 Hale, George, Jr. [1888].
 Hale, W. H. [1888].
 Hall, John C. [1888].
 Hall, L. Brewer [1879].
 Hammond, L. J.
 Hansell, H. F. [1884].
 Hare, Hobart A.
 Harlan, George C. [1888].
 Harlow, L. D. [1884].
 Harte, R. H.
 Hartzell, M. B. [1890].
 Hawley, B. F.
 Hay, Thomas [1866].
 Hays, I. Minis [1883].
 Hazel, F. B. [1883].
 Hearn, W. Jos. [1880].
 Heisler, J. C.
 Hellyer, Edw. [1862].
 Helsby, T. H. [1869].
 Henry, F. P. [1879].
 Henszey, Samuel C.
 Hewson, Addinell, Jr. [1888].
 Heyl, Albert G.
 Hickman, N. [1879].
 Hill, H. G.
 Hinkle, A. G. B. [1865].
 Hirsh, A. B. [1884].
 Hirst, B. C. [1888].
 Hoch, W. R. [1884].
 Hoffman, J. E.
 Holland, John W. [1887].
 Hollopeter, W. C. [1883].
 Holly, W. J.
 Holmes, E. W. [1886].
 Holt, J. F. [1876].
 Hooper, P.
 Hopkins, Wm. B. [1888].
 Hopkinson, O.
 Horner, C. W. [1879].
 Horwitz, O. [1888].
 Hottenstein, C. D.
 Howard, E. C.
 Hughes, Donnel [1884].
 Hughes, Wm. E. [1888].

- Huidekoper, R. S. [1888].
 Hulshizer, A. H. [1885].
 Hummell, A. L.
 Hunt, Wm. [1883].
 Isett, F. S.
 Jackson, Ed. [1881].
 Janney, W. S. [1881].
 Johnson, Russell H.
 Johnson, Wm. N.
 Judd, L. D. [1884].
 Jurist, L. [1888].
 Keating, J. M. [1884].
 Keating, Wm. V.
 Keely, R. F.
 Keen, W. W. [1883].
 Keller, A. P.
 Kelley, Jos. V. [1883].
 Kempton, A. F. [1888].
 Kevin, R. O.
 Keyser, P. D. [1874].
 Kilduffe, Robert
 Kirkbride, M. E.
 Kirkpatrick, A. B.
 Kline, William O.
 Knight, S. R. [1876].
 Kynett, H. H.
 Ladd, Horace [1883].
 Lamb, A. V.
 Lamparter, E.
 Lancaster, Thomas [1888].
 Latta, S. W.
 Lautenbach, L. J. [1888].
 Lawrence, Edw. S.
 Leaman, Henry [1870].
 Leaman, Rosh.
 Lee, Benjamin [1867].
 Lee, Bernard R.
 Leffmann, Henry [1881].
 Leidy, Joseph [1862].
 Leidy, Joseph, Jr.
 Leidy, Philip [1877].
 Levan, J. R. [1880].
 Levis, R. J. [1873].
 Litch, W. F.
 Lloyd, J. H.
 Loder, P. E. [1888].
 Loeling, G.
 Longaker, D. [1890].
 Longstreth, Morris [1888].
 Lopez, Joseph H. [1888].
 Love, L. F. [1885].
 Lowengrund, Lee [1888].
 Luther, F. M.
 Lyons, Wm. [1872].
 MacBride, Isaac.
 MacCoy, A. W. [1883].
 McAlarney, Wm. M.
 McCall, C. A. [1884].
 McCamy, R. H.
 McClellan, George.
 McClelland, C. [1877].
 McCollin, S. M. [1888].
 McCombs, R. S. [1884].
 McCracken, G. Y.
 McDowell, S. B. [1884].
 McElroy, B. F. [1884].
 McFerran, James A. [1883].
 McGuigan, J. I.
 McLean, H. D.
 Marshall, Clara.
 Marshall, G. M.
 Martin, Edw. [1888].
 Martin, H. B.
 Massey, G. B. [1886].
 Mays, T. J. [1877].
 Mears, J. Ewing [1883].
 Meigs, A. V. [1888].
 Mettler, L. H.
 Miller, D. J. M.
 Miller, G. B.
 Miller, John S.
 Milliken, F. H.
 Mills, C. K. [1879].
 Minick, A. K. [1881].
 Mitchell, James.
 Mitchell, J. K.
 Mitchell, S. Weir [1884].
 Montgomery, E. E. [1881].
 Moorhead, W. W.
 Morehouse, George R.
 Morris, Casper.
 Morris, E. J.
 Morris, Henry [1888].
 Morris, J. C. [1870].
 Morrison, Wm. H. [1888].
 Morton, S. W.
 Morton, T. S. K. [1888].
 Moss, William.
 Muehleck, G. A.
 Muller, A. F.
 Musser, J. H. [1883].
 Myers, T. D.
 Nash, J. D. [1876].
 Neel, H. A. P.
 Neff, Jos. S. [1884].
 Neilson, T. R. [1884].
 Nicholls, B. F. [1888].
 Noble, C. P.
 Nolan, E. J. [1879].
 O'Farrell, G. D. [1883].
 O'Hara, Michael [1874].
 Oliver, Charles A. [1883].
 O'Neill, F. X.
 O'Neill, J. J.
 Osler, Owen
 Ott, Lambert.
 Owen, J. J.
 Packard, F. A.

- Packard, John H. [1877].
 Paist, H. C. [1888].
 Pancoast, Wm. H. [1867].
 Pardee, H. A.
 Parish, W. H. [1879].
 Partenheimer, J. R. [1876].
 Parvin, Theophilus [1886].
 Patterson, J. K.
 Pearson, J. S.
 Penrose, C. B. [1888].
 Pepper, William [1875].
 Perkins, F. M. [1883].
 Perry, Hext M.
 Phelps, W. C.
 Piersol, G. A. [1884].
 Pilkington, H.
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 Potsdamer, J. B. [1884].
 Price, Joseph [1888].
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 Randall, B. A. [1885].
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 Richardson, Ida E.
 Rickards, William M. L. [1875].
 Ring, G. Oram.
 Risley, S. D. [1878].
 Roberts, A. S. [1884].
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 Robinson, James.
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 Rosenthal, E. [1888].
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 Rudderow, B. J.
 Runkle, W. V.
 Sajous, C. E. [1886].
 Salinger, J. L.
 Santee, E. I. [1874].
 Schaffer, Charles.
 Scheidt, P. M.
 Schneideman, T. B.
 Schoales, C. B.
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 Schweinitz, George E. de.
 Schwenk, P. N. K. [1884].
 Seiler, Carl [1881].
 Seiss, R. W. [1888].
 Seltzer, C. Jay [1884].
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 Service, C.
 Seymour, A. M.
 Shakespeare, E. O. [1884].
 Shapleigh, E. B. [1876].
 Sheets, John.
 Shellenberger, J. R.
 Shimwell, B. T. [1888].
 Shober, J. B.
 Shoemaker, George E.
 Shoemaker, J. V. [1878].
 Shoemaker, S. B.
 Shriner, Thomas.
 Simes, J. H. C. [1884].
 Simsohn, J. S.
 Sinexon, Justus [1888].
 Sinkler, Wharton [1888].
 Skillern, P. G.
 Skillern, S. R. [1876].
 Skilling, M. J. [1886].
 Slocum, H. A. [1884].
 Smith, A. D.
 Smock, L. P.
 Snoddy, L.
 Sparks, George W.
 Stahl, B. F.
 Steinbach, L. W. [1884].
 Stelwagon, H. W. [1884].
 Stern, M. J.
 Stewart, D. D. [1888].
 Stewart, J. S.
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 Stillé, Alfred [1862].
 Stocker, A. E.
 Stone, Edward R. [1888].
 Stone, James F.
 Strawbridge, George [1876].
 Stritmatter, I. P.
 Strobel, J.
 Stubbs, George E. [1874].
 Sudduth, W. X.
 Styer, Charles.
 Taylor, J. Howard [1879].
 Taylor, J. Madison [1888].
 Taylor, W. J.
 Taylor, William L.
 Teller, W. H.
 Thomas, Charles H. [1879].
 Thomas, F. W.
 Thomson, William [1884].
 Trautmann, B. [1884].
 Treacy, D. J.
 Trojano, G.
 Troth, S. N. [1863].
 Tull, M. G.
 Turnbull, Charles S. [1879].
 Turnbull, Lawrence [1864].
 Turner, J. B.
 Tyson, James [1875].
 Vanderslice, E. S.

Vandyke, E. B.
 Van Harlingen, A. [1884].
 Vogler, George W. [1881].
 Walk, James W. [1883].
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 Ward, E. T.
 Watson, A. W. [1888].
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 Waugh, W. F. [1884].
 Webb, W. H. [1875].
 Welch, W. M. [1870].
 Wells, James Ralston [1869].
 Wells, P. F.
 Werner, Marie.
 Wharton, H. R. [1885].
 Wheeler, E. B.
 Whelen, Alfred [1884].
 White, F. Emily.
 White, J. W.
 Whiteside, J. E. [1875].
 Wiehle, C. A. Max.
 Wightman, J. G.
 Wiley, Eugene [1884].
 Willard, De Forrest [1883].

Williams, Horace.
 Willits, Charles H. [1884].
 Willits, I. Pierson [1890].
 Willits, Mary.
 Wilson, C. Meigs [1885].
 Wilson, H. A. [1888].
 Wilson, James C. [1883].
 Wilson, James F.
 Wirgman, Charles [1884].
 Wise, George G.
 Wittig, Charles F. [1863].
 Wolff, L. [1888].
 Wolford, W. S.
 Wood, H. C. [1876].
 Woodbury, F. [1880].
 Woods, D. F. [1884].
 Woods, M.
 Yard, John L. [1888].
 Yarrow, Thomas J. [1872].
 Young, I. Gilbert.
 Young, James K. [1888].
 Ziegler, Walter M. L. [1883].
 Ziegler, William H.
 Zuill, W. L.

SCHUYLKILL COUNTY.

OFFICERS.

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MEMBERS.

Amick, J. H. B. (Philadelphia) [1887].	Davis, B. H., Mahanoy City [1885].
Bankes, W. C., Middleport [1888].	Dechert, D., Schuylkill Haven
Bartles, B. F., Mt. Carmel (Northum- berland).	Gillars, A. L., Gilberton.
Beach, G. B., Gordon.	Gleim, G., Jr., Cornwall (Lebanon).
Biddle, J. C., Ashland [1878].	Gray, J. C., Cressona.
Binckley, G. K., Orwigsburg.	Grigg, T. A., Mahanoy City [1890].
Birch, T. J., Port Carbon [1879].	Guldin, B. C., Minersville [1876].
Bland, D. W., Pottsville [1870].	Gwinner, J. M., Centralia.
Bleiler, C. A., Frackville.	Halberstadt, A. H., Pottsville [1866].
Bleiler, P. O., Girardville.	Halberstadt, G. H., Pottsville [1879].
Brady, S. H., Lost Creek [1880].	Hermany, P., Mahanoy City [1874].
Brendle, G. F., Mahanoy City [1874].	Koser, S. S., Williamsport (Lycoming).
Callen, J. S., Shenandoah [1883].	Langton, D. J., Shenandoah [1883].
Carpenter, J. S., Pottsville [1884].	Lenker, C., Schuylkill Haven [1880].
Carpenter, J. T., Pottsville [1866].	Lewis, T., Mahanoy City [1883].
Carr, A. P., St. Clair [1877].	Little, George, Tamaqua.
Carr, W. H., Lancaster [1868].	Matten, W. H., McKeansburg.
Chrisman, R. S., Pottsville [1875].	Matter, G. F., Shenandoah.
	McCauley, J. W., Shenandoah.
	Miller, C. D., Pottsville [1888].

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Palmer, C. T., Pottsville [1878].	Smith, W. C. J., St. Clair [1879].
Phillips, E. F., Tower City [1884].	Spalding, S. C., Shenandoah [1876].
Reagen, G. L., Berwick (Columbia Co.) [1870].	Stein, James, Shenandoah.
Rentschler, H. D., Ringtown [1878].	Swaving, J. C., Pottsville [1884].
Rickert, L. M., Tower City.	Swayze, M. A., Pottsville [1877].
Samuels, E. W., Mt. Carmel (Northumberland) [1883].	Taggart, D., Frackville [1881].
	Weber, Louis, Mahanoy City [1883].
	Williams, W. T., Mt. Carmel (Northumberland).

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MEMBERS.

Bordner, H. H., Shamokin Dam [1881].	Shindel, John Y., Middleburg [1881].
Hermann, P., Kratzerville [1886].	Shive, S. D., Bannerville [1888].
Kanawell, J. F., Penn's Creek.	Smith, A. M., Beaver Springs [1883].
Nipple, H. M., Selinsgrove [1881].	Toole, E. W., Freeburg [1888].
Rothrock, M., Mt. Pleasant Mills.	Wagenseller, B. F., Selinsgrove [1877].
Rothrock, Roswell, McClure [1880].	Wagner, John O., Beaver [1886].

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Fichtiner, B. A., Confluence.	Masters, G. B., Rockwood.
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Gardner, W. H., Glade.	Meyers, W. H., Meyersdale.
Gameau, W. A., Berlin.	Mitchel, W. F., Addison.
Garey, Henry, Berlin.	Moore, H. B., New Lexington.
Garman, J. S., Berlin.	Mountain, W. S., Confluence.
Gildner, David, Rockwood.	Reidt, H. C., New Baltimore.
Good, S. S., Meyersdale [1890].	Spiker, A. T., Elk Lick.
Harrison, A. C., Meyersdale.	Stultzman, C. G., Rockwood.
Kimmel, H. S., Somerset.	Tannehill, M., Confluence.
Kuhlman, W. S., Ursina [1890].	Welsh, W. V., Staystown.

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Ainey, D. C., New Milford [1874].	Johnston, C. A., Hop Bottom.
Birdsall, S., Susquehanna [1869].	Lamb, F. D., Hallstead [1885].
Boyle, J. J., Susquehanna.	Lowry, W. J., Harford.
Brundage, A. T., Factoryville [1873].	Miller, M. L., Lanesboro.
Chamberlain, A., Brooklyn [1885].	Peck, D. J., Susquehanna.
Engle, S. J., Jackson.	Richardson, W. L., Montrose [1884].
Fassett, A. H., Hop Bottom.	Rogers, William, Gibson.
Fletcher, W. W., Susquehanna [1885].	Tingley, H. A., Susquehanna.
Gardner, E. R., Montrose.	Vanness, C. N., Hallstead.
Grattan, F. E., Springville.	Wheeler, E. S., Nicholson.
Halsey, C. C., Montrose [1862].	Wilmot, E. F., Great Bend [1875].
Harrison, G. M., Auburn Centre.	

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Arters, J. D., Oil City [1888].	Kerr, C. S., Emlenton.
Barr, G. W., Titusville.	Magee, G. W., Seneca.
Bowser, A. H., Pittsville.	McClelland, F. M., Utica.
Bredin, S., Franklin.	McCulloch, T. C., Oil City [1882].
Connors, W. F., Oil City.	McKinley, W. F., Polk.
Coope, A. F., Oil City [1882].	Moore, E. W., Franklin [1882].
Coulter, C. W., Oil City [1890].	Morrow, J. W., Tionesta (Forest County) [1890].
Crawford, J. K., Cooperstown.	Nicholson, W. A., Franklin [1890].
Crawford, Robert, Cooperstown [1868].	Ritchey, J. A., Oil City [1874].
Davis, F. F., Oil City [1870].	Siggins, J. B., Tionesta (Forest).
Dille, G. W., Cooperstown.	Stillman, G. B., Franklin.
Forster, William, Oil City.	Varian, Wm., Titusville.
Glenn, J. B., Franklin.	Whann, W. L., Franklin [1870].
Hamilton, B. F., Emlenton.	

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Blodget, A. C. Youngsville.	Cowden, E. J., North Warren.
Bouton, S. D., Sheffield.	Cowles, H. H., Lander.
Brown, Otis S., Russell.	Curwen, John, Warren [1866].

Guth, M. S., Warren.
 Hamilton, A. B., Garland.
 Hamilton, J. W., North Clarendon.
 Hazeltine, W. V., Warren.
 Hepburn, J., Warren.
 Knapp, J. J., Kinzua.
 McNett, G. F., Sheffield [1883].

Pierce, W. S., Warren.
 Seabury, W. W., Sugar Grove.
 Shugert, F. A., Tidioute [1883].
 Stewart, Richard B., Warren.
 Stranahan, D. V. [1883].
 Stranahan, E. C., Warren.
 Whitcomb, F. W., Warren.

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MEMBERS.

Acheson, H. M., Washington.
 Alexander, J. W., Canonsburg [1877].
 Alexander, W. H., Canonsburg [1888].
 Billeck, H. T., Courtney.
 Blachley, S. L., Sparta [1868].
 Blachley, O. L., Sparta [1879].
 Botkins, L. C., Burgettstown [1888].
 Campbell, C., Hickory [1890].
 Crawford, J. S., Taylorstown.
 Craycraft, C. C., Van Buren.
 Denny, W., Claysville.
 Dodd, C. T., Van Buren.
 Dodd, W. S., Amity.
 Donaldson, J. B., Canonsburg [1877].
 Emory, B. A., Dunningville [1881].
 Farquhar, Q. C. East Bethlehem [1882].
 French, C. E., Beantleysville.
 Grayson, W., Washington.
 Hindman, S. J., Paris Crossing.
 Irwin, J. B., West Alexander.
 Keys, R. S. H., Monongahela City.
 Lacock, S. A., Canonsburg [1890].
 Lewis, D. A., Washington.
 Lindley, C. M., Zollarsville.
 Linn, G. A., Monongahela City [1875].
 Long, J. E., Kammerer [1890].
 Lyle, John, Houstonville.
 Lytle, G. E., Monongahela City [1880].
 McCarrel, D., Hickory [1878].

McCarrel, J. F., Eldersville [1890].
 McDonough, H. H., Vanceville [1881].
 McElroy, J., Hickory [1876].
 McGrew, J. F., Finleysville.
 McKean, J. A., Washington [1878].
 McKennan, T., Washington [1868].
 Mitchell, W. T., Allensport [1890].
 Moore, J. M., Florence.
 Murry, U. B., Amity [1890].
 Nesbit, J. C., Burgettstown.
 Patterson, J. A., Washington [1881].
 Patterson, M., Midway.
 Reed, J. B., Cross Creek.
 Riddle, W. V., Burgettstown [1890].
 Runion, A. L., Canonsburg.
 Scott, F. P., Monongahela City [1872].
 Scott, J. Y., Washington [1883].
 Sloan, J. G., Monongahela City [1879].
 Snodgrass, H. L., Buffaloville [1884].
 Sproulls, J. N., Claysville [1890].
 Sproulls, W. W., Houstonville.
 Stockton, T. C. M., Cross Creek.
 Teagarden, J. W., Burnsville [1890].
 Thistle, J. L., Washington [1890].
 Thompson, W. R., Washington [1878].
 Welch, L. B., Coal Bluff [1884].
 Winnett, F. B., Scenery Hill.
 Wood, C. B., Monongahela City [1880].
 Wood, G. B., West Alexander [1888].

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Circleville.
 Greensburg.
 Derry Station.
 Greensburg.
 Latrobe.

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Anawalt, J. W., Greensburg [1867].	Marsh, F. L., Mt. Pleasant [1887].
Brown, J. Logan, Pleasant Unity.	McConaughy, D. W., Latrobe [1867].
Cline, James C., Derry Station [1890].	McCune, J. W., Suterville.
Cook, J. L., New Alexander.	McGowan, W. B., Ligonier [1884].
Cowan, Frank, Greensburg [1873].	McKee, Joseph I., Penn Station.
Crawford, Jas. L., Greensburg [1881].	Milligan, J. D., Greensburg [1882].
Crosby S. M., Mt. Pleasant.	Myers, A. H., Mt. Pleasant [1890].
Fulton, J. A., New Florence.	Peebles, A. H., Youngstown.
Gant, Robert F., Scottdale.	Peebles, J. E., Youngstown.
Hammer, Robert B., Greensburg.	Porter, C. C., Greensburg.
Harrison, W. L., Jeanette [1890].	Portzer, F. L., Greensburg.
Harvey, J. W., Greensburg.	Robinson, J. Q., West Newton [1884].
Hebrank, J. F., Adamsburg.	Sell, J., Greensburg.
Hughes, J. W., Latrobe [1890].	Sowash, M. F., Irwin Station.
Kammerer, J. W. B., Greensburg [1876].	Stewart, J. G., Murrysville.
Kline, W. J. K., Greensburg [1876].	Strickler, A. H., Scottdale [1884].
Lawhead, J. H., West Newton.	Sutton, George S., Jeanette.
Long, J. S., Circleville.	Van Dyke, G. M., West Newton.
Marchand, James I., Irwin Station [1882].	Van Kirk, B. H., West Newton.
	Weddell, E. P., Scottdale.

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Armstrong, J. A., Hellam.	Holtzapple, G. E., Logansville [1883].
Bacon, F. W., York.	Hyson, J. M., Red Lion [1881].
Bahn, G. W., Spring Grove [1888].	Kain, J. B., York [1888].
Bailey, W. D., Dillsburgh.	Lochman, M. L., York [1881].
Barr, S. D., York [1890].	May, J. C., Manchester.
Channel, J. C., Wrightsville.	Roland, W. S., York [1876].
Deisinger, J. Hellam [1887].	Rouse, S. J., York [1881].
Falconstine, A. M., Logansville.	Small, J. F., York.
Frey, Levi, York [1879].	Wagner, W. H., York.
Gable, I. C., York [1881].	Wentz, A. C., Hanover.
Gotwald, D. K., York [1884].	Wiest, J., York [1877].
Grove, A. P. T., Dallastown.	Yost, G. P., Glen Rock [1880].

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